



Mathletics

The Ontario Curriculum

Grades K-10

Mathletics Curriculum Alignment

Introduction

At Mathletics, we are committed to providing students, teachers and schools with high-quality learning resources that align with the most up-to-date curricula.

Our team of educational publishers has created a course that follows the revised Ontario Curriculum, Grades 1–8 (Mathematics), 2005. Kindergarten and Grade 9–10 Essentials are also included. You can be assured that students have access to relevant and targeted content.

Mathletics courses consist of topics that follow the strands of the curriculum.

When a standard is best addressed by teacher directed activities, it is indicated in this document. Such activities may be explored using the Mathletics online eBooks, videos and interactives or through our engaging rich learning tasks.

This document outlines this mapping and acts as a useful guide when using Mathletics in your school.

3P Learning

September 2019

Kindergarten

Strand	Expectation	Expectation Description	Activities
Number Sense and Numeration	15.1	Investigate the idea that a number's position in the counting sequence determines its magnitude.	Teacher directed
Number Sense and Numeration	15.2	Investigate some concepts of quantity and equality through identifying and comparing sets with more, fewer, or the same number of objects.	More or Less? More, Less or the Same to 10
Number Sense and Numeration	15.3	Make use of one-to-one correspondence in counting objects and matching groups of objects.	How Many? How Many Dots? Count to 5
Number Sense and Numeration	15.4	Demonstrate an understanding of the counting concepts of stable order and of order irrelevance.	Order Numbers to 10
Number Sense and Numeration	15.5	Subitize quantities to 5 without having to count, using a variety of materials and strategies.	Dot Display
Number Sense and Numeration	15.6	Use information to estimate the number in a small set.	Dot Display
Number Sense and Numeration	15.7	Explore and communicate the function/purpose of numbers in a variety of contexts.	Teacher directed
Number Sense and Numeration	15.8	Explore different Canadian coins, using coin manipulatives.	Teacher directed
Number Sense and Numeration	15.9	Compose and decompose quantities to 10.	Adding to Make 5 and 10
Number Sense and Numeration	15.10	Investigate addition and subtraction in everyday experiences and routines through the use of modelling strategies and manipulatives and counting strategies.	Model Addition Model Subtraction Adding to 5 Subtracting From 5 Adding to Make 5 and 10
Number Sense and Numeration	20.1	Demonstrate an understanding of number relationships for numbers from 0 to 10, through investigation.	How Many? How Many Dots? Count to 5
Number Sense and Numeration	20.2	Use, read, and represent whole numbers to 10 in a variety of meaningful contexts.	Teacher directed
Measurement	16.1	Select an attribute to measure, determine an appropriate non-standard unit of measure, and measure and compare two or more objects.	Everyday Length Everyday Mass Compare Length Hot or Cold? Which Holds More?
Measurement	16.2	Investigate strategies and materials used when measuring with non-standard units of measure.	Teacher directed

Kindergarten

Strand	Expectation	Expectation Description	Activities
Geometry and Spatial Sense	17.1	Explore, sort, and compare the attributes and the properties of traditional and non-traditional two-dimensional shapes and three-dimensional figures.	Collect the Shapes Collect the Objects Match the Solid 1 Match the Object
Geometry and Spatial Sense	17.2	Communicate an understanding of basic spatial relationships in their conversations and play, in their predictions and visualizations, and during transitions and routines.	Where is it? Left or Right?
Geometry and Spatial Sense	17.3	Investigate and explain the relationship between two-dimensional shapes and three-dimensional figures in objects they have made.	Relate Shapes and Solids
Geometry and Spatial Sense	20.3	Compose pictures, designs, shapes, and patterns, using two-dimensional shapes; predict and explore reflective symmetry in two-dimensional shapes; and decompose two-dimensional shapes into smaller shapes and rearrange the pieces into other shapes, using various tools and materials.	Teacher directed
Geometry and Spatial Sense	20.4	Build three-dimensional structures using a variety of materials and identify the three-dimensional figures their structure contains.	Teacher directed
Patterning and Algebra	18.1	Identify and describe informally the repeating nature of patterns in everyday contexts, using appropriate terminology and gestures.	Teacher directed
Patterning and Algebra	18.2	Explore and extend patterns using a variety of materials.	Simple Patterns Color Patterns Complete the Pattern
Patterning and Algebra	18.3	Identify the smallest unit (the core) of a pattern and describe why it is important.	Teacher directed
Patterning and Algebra	18.4	Create and translate patterns.	Teacher directed
Data Management and Probability	19.1	Ask questions that can be answered through data collection, collect data, and make representations of their observations, using graphs.	Teacher directed
Data Management and Probability	19.2	Interpret data presented in graphs and draw conclusions.	Picture Graphs: More or Less Picture Graphs: single-unit scale Picture Graphs: Who has the Goods?
Data Management and Probability	19.3	Respond to and pose questions about data collection and graphs.	Teacher directed
Data Management and Probability	20.5	Investigate and describe how objects can be collected, grouped, and organized according to similarities and differences.	Teacher directed
Data Management and Probability	20.6	Use mathematical language in informal discussions to describe probability in familiar, everyday situations.	Teacher directed

Grade 1

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order whole numbers to 50, using a variety of tools and contexts.	1 to 30 Order Numbers to 20 More, Less or the Same to 10 More, Less or the Same to 20 Compare Numbers to 20 Compare Numbers to 50 Before, After and Between to 20 Making Numbers Count Making Teen Numbers
Number Sense and Numeration	Quantity Relationships	Read and print in words whole numbers to ten, using meaningful contexts.	Matching Numbers to 10
Number Sense and Numeration	Quantity Relationships	Demonstrate, using concrete materials, the concept of conservation of number.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Relate numbers to the anchors of 5 and 10.	Adding to Make 5 and 10
Number Sense and Numeration	Quantity Relationships	Identify and describe various coins, using coin manipulatives or drawings, and state their value.	Everyday Money
Number Sense and Numeration	Quantity Relationships	Represent money amounts to 20¢, through investigation using coin manipulatives.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Estimate the number of objects in a set, and check by counting.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Compose and decompose numbers up to 20 in a variety of ways, using concrete materials.	Composing Additions to 20
Number Sense and Numeration	Quantity Relationships	Divide whole objects into parts and identify and describe, through investigation, equal-sized parts of the whole, using fractional names.	Halves Halves and Quarters
Number Sense and Numeration	Counting	Demonstrate, using concrete materials, the concept of one-to-one correspondence between number and objects when counting.	How Many? How Many Dots?
Number Sense and Numeration	Counting	Count forward by 1's, 2's, 5's, and 10's to 100, using a variety of tools and strategies.	Counting Up to 20 Going Up Counting Forward Count by Twos Count by Fives Count by Tens Count by 2s, 5s and 10s Skip Counting with coins
Number Sense and Numeration	Counting	Count backwards by 1's from 20 and any number less than 20, with and without the use of concrete materials and number lines.	Counting Back Within 20

Grade 1

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Counting	Count backwards from 20 by 2's and 5's, using a variety of tools.	Teacher directed
Number Sense and Numeration	Counting	Use ordinal numbers to thirty-first in meaningful contexts.	Ordinal Numbers 1st to 31st
Number Sense and Numeration	Operational Sense	Solve a variety of problems involving the addition and subtraction of whole numbers to 20, using concrete materials and drawings.	1 more, 2 less Doubles and Halves to 10 Doubles and Halves to 20 Doubles and Near Doubles Model Addition Model Subtraction Addition Facts Subtraction Facts to 18 All about Ten All about Twenty Related Facts 1 Adding to 10 Word Problems Add and Subtract Problems
Number Sense and Numeration	Operational Sense	Solve problems involving the addition and subtraction of single-digit whole numbers, using a variety of mental strategies.	Adding to Ten Subtracting from Ten All about Ten
Number Sense and Numeration	Operational Sense	Add and subtract money amounts to 10¢, using coin manipulatives and drawings.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Demonstrate an understanding of the use of non-standard units of the same size for measuring.	Measuring Length with Blocks
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record lengths, heights, and distances.	Measuring Length with Blocks
Measurement	Attributes, Units, and Measurement Sense	Construct, using a variety of strategies, tools for measuring lengths, heights, and distances in non-standard units.	Measuring Length with Blocks
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and describe area, through investigation using non-standard units.	Equal Areas
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and describe the capacity and/or mass of an object, through investigation using non-standard units.	How Full?
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and describe the passage of time, through investigation using nonstandard units.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Read demonstration digital and analogue clocks, and use them to identify benchmark times and to tell and write time to the hour and half-hour in everyday settings.	Set Time to the Hour Set Time to the Half Hour

Grade 1

Strand	Substrand	Specific Expectation	Activities
Measurement	Attributes, Units, and Measurement Sense	Name the months of the year in order, and read the date on a calendar.	Using a Calendar Months After and Before
Measurement	Attributes, Units, and Measurement Sense	Relate temperature to experiences of the seasons.	Teacher directed
Measurement	Measurement Relationships	Compare two or three objects using measurable attributes, and describe the objects using relative terms.	Filling Fast! Hot or Cold? Which Holds More?
Measurement	Measurement Relationships	Compare and order objects by their linear measurements, using the same non-standard unit.	Compare Length
Measurement	Measurement Relationships	Use the metre as a benchmark for measuring length, and compare the metre with non-standard units.	Teacher directed
Measurement	Measurement Relationships	Describe, through investigation using concrete materials, the relationship between the size of a unit and the number of units needed to measure length.	Teacher directed
Geometry and Spatial Sense	Geometric Properties	Identify and describe common two-dimensional shapes and sort and classify them by their attributes, using concrete materials and pictorial representations.	Collect the Shapes Count Sides and Corners
Geometry and Spatial Sense	Geometric Properties	Trace and identify the two-dimensional faces of three-dimensional figures, using concrete models.	Relate Shapes and Solids
Geometry and Spatial Sense	Geometric Properties	Identify and describe common three-dimensional figures and sort and classify them by their attributes, using concrete materials and pictorial representations.	Collect the Objects
Geometry and Spatial Sense	Geometric Properties	Describe similarities and differences between an everyday object and a three-dimensional figure.	Match the Object Match the Solid 1
Geometry and Spatial Sense	Geometric Properties	Locate shapes in the environment that have symmetry, and describe the symmetry.	Symmetry
Geometry and Spatial Sense	Geometric Relationships	Compose patterns, pictures, and designs, using common two-dimensional shapes.	Simple Patterns Complete the Pattern
Geometry and Spatial Sense	Geometric Relationships	Identify and describe shapes within other shapes.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Build three-dimensional structures using concrete materials, and describe the two-dimensional shapes the structures contain.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Cover outline puzzles with two-dimensional shape.	Teacher directed

Grade 1

Strand	Substrand	Specific Expectation	Activities
Geometry and Spatial Sense	Location and Movement	Describe the relative locations of objects or people using positional language.	Where is it? Left or Right?
Geometry and Spatial Sense	Location and Movement	Describe the relative locations of objects on concrete maps created in the classroom.	Following Directions
Geometry and Spatial Sense	Location and Movement	Create symmetrical designs and pictures, using concrete materials, and describe the relative locations of the parts.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Identify, describe, and extend, through investigation, geometric repeating patterns involving one attribute.	Missing it! Color Patterns Simple Patterns
Patterning and Algebra	Patterns and Relationships	Identify and extend, through investigation, numeric repeating patterns.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Describe numeric repeating patterns in a hundreds chart.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Identify a rule for a repeating pattern.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Create a repeating pattern involving one attribute.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Represent a given repeating pattern in a variety of ways.	Teacher directed
Patterning and Algebra	Expressions and Equality	Create a set in which the number of objects is greater than, less than, or equal to the number of objects in a given set.	Teacher directed
Patterning and Algebra	Expressions and Equality	Demonstrate examples of equality, through investigation, using a "balance" model.	Balancing Act Balancing Objects
Patterning and Algebra	Expressions and Equality	Determine, through investigation using a "balance" model and whole numbers to 10, the number of identical objects that must be added or subtracted to establish equality.	Composing Numbers to 10
Data Management and Probability	Collection and Organization of Data	Demonstrate an ability to organize objects into categories by sorting and classifying objects using one attribute, and by describing informal sorting experiences.	Sort It
Data Management and Probability	Collection and Organization of Data	Collect and organize primary data that is categorical, and display the data using one-to-one correspondence, prepared templates of concrete graphs and pictographs (with titles and labels), and a variety of recording methods.	Making Picture Graphs: With Scale Tallies

Grade 1

Strand	Substrand	Specific Expectation	Activities
Data Management and Probability	Data Relationships	Read primary data presented in concrete graphs and pictographs, and describe the data using comparative language.	Picture Graphs: More or Less Read Graphs Picture Graphs: Who has the Goods? Add and Subtract Using Graphs
Data Management and Probability	Data Relationships	Pose and answer questions about collected data.	Teacher directed
Data Management and Probability	Probability	Describe the likelihood that everyday events will occur, using mathematical language.	Will it Happen?

Grade 2

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order whole numbers to 100, including money amounts to 100¢, using a variety of tools.	Number Lines Number Line Order Compare Numbers to 100 Making Big Numbers Count Greater or Less to 100 Place Value 1
Number Sense and Numeration	Quantity Relationships	Read and print in words whole numbers to twenty, using meaningful contexts.	Matching Numbers to 20
Number Sense and Numeration	Quantity Relationships	Compose and decompose two-digit numbers in a variety of ways, using concrete materials.	Place Value 1 Repartition Two-digit Numbers
Number Sense and Numeration	Quantity Relationships	Determine, using concrete materials, the ten that is nearest to a given two-digit number, and justify the answer.	Nearest 10?
Number Sense and Numeration	Quantity Relationships	Determine, through investigation using concrete materials, the relationship between the number of fractional parts of a whole and the size of the fractional parts.	Shade Fractions Model Fractions Halves Halves and Quarters Uneven partitioned shapes 1
Number Sense and Numeration	Quantity Relationships	Regroup fractional parts into wholes, using concrete materials.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Compare fractions using concrete materials, without using standard fractional notation.	Compare Fractions 1a
Number Sense and Numeration	Quantity Relationships	Estimate, count, and represent (using the ¢ symbol) the value of a collection of coins with a maximum value of one dollar.	Teacher directed
Number Sense and Numeration	Counting	Count forward by 1's, 2's, 5's, 10's, and 25's to 200, using number lines and hundreds charts, starting from multiples of 1, 2, 5, and 10.	Going Up Count by Twos Count by Fives Count by Tens Skip Counting with Coins
Number Sense and Numeration	Counting	Count backwards by 1's from 50 and any number less than 50, and count backwards by 10's from 100 and any number less than 100, using number lines and hundreds charts.	Counting Backward
Number Sense and Numeration	Counting	Locate whole numbers to 100 on a number line and on a partial number line.	Number Lines Number Line Order
Number Sense and Numeration	Operational Sense	Solve problems involving the addition and subtraction of whole numbers to 18, using a variety of mental strategies.	Addition Addition Facts Subtraction Facts to 18 Simple Subtraction
Number Sense and Numeration	Operational Sense	Describe relationships between quantities by using whole-number addition and subtraction.	Problems: Add and Subtract

Grade 2

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Operational Sense	Represent and explain, through investigation using concrete materials and drawings, multiplication as the combining of equal groups.	Groups of Two Groups of Three Groups of Four Groups of Five
Number Sense and Numeration	Operational Sense	Represent and explain, through investigation using concrete materials and drawings, division as the sharing of a quantity equally.	Dividing Twos Dividing Threes Dividing Fours Dividing Fives
Number Sense and Numeration	Operational Sense	Solve problems involving the addition and subtraction of two-digit numbers, with and without regrouping, using concrete materials, student-generated algorithms, and standard algorithms.	Bar Model Problems 1 Bar Model Problems 2 Add Numbers: Regroup a Ten Add Two 2-Digit Numbers Subtract Numbers Subtract Numbers: Regroup 2-Digit Differences
Number Sense and Numeration	Operational Sense	Add and subtract money amounts to 100¢, using a variety of tools and strategies.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Choose benchmarks – in this case, personal referents – for a centimetre and a metre.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Estimate and measure length, height, and distance, using standard units and non-standard units.	Measuring Length with Blocks How Long is That? Measuring Length
Measurement	Attributes, Units, and Measurement Sense	Record and represent measurements of length, height, and distance in a variety of ways.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Select and justify the choice of a standard unit or a nonstandard unit to measure length.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record the distance around objects, using non-standard units.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record area, through investigation using a variety of non-standard units.	Equal Areas Bigger or Smaller Shape
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record the capacity and/or mass of an object, using a variety of non-standard units.	Filling Fast!
Measurement	Attributes, Units, and Measurement Sense	Tell and write time to the quarter-hour, using demonstration digital and analogue clocks.	Quarter To and Quarter Past
Measurement	Attributes, Units, and Measurement Sense	Construct tools for measuring time intervals in non-standard units.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Describe how changes in temperature affect everyday experiences.	Teacher directed

Grade 2

Strand	Substrand	Specific Expectation	Activities
Measurement	Attributes, Units, and Measurement Sense	Use a standard thermometer to determine whether temperature is rising or falling.	Teacher directed
Measurement	Measurement Relationships	Describe, through investigation, the relationship between the size of a unit of area and the number of units needed to cover a surface.	Equal Areas Bigger or Smaller Shape
Measurement	Measurement Relationships	Compare and order a collection of objects by mass and/or capacity, using non-standard units.	Everyday Mass Filling Fast!
Measurement	Measurement Relationships	Determine, through investigation, the relationship between days and weeks and between months and years.	Days of the Week Months of the Year
Geometry and Spatial Sense	Geometric Properties	Distinguish between the attributes of an object that are geometric properties and the attributes that are not geometric properties, using a variety of tools.	Teacher directed
Geometry and Spatial Sense	Geometric Properties	Identify and describe various polygons and sort and classify them by their geometric properties, using concrete materials and pictorial representations.	Collect Simple Shapes Collect More Shapes Count Sides and Corners
Geometry and Spatial Sense	Geometric Properties	Identify and describe various three-dimensional figures and sort and classify them by their geometric properties, using concrete materials.	How Many Faces? How many Edges? How many Corners? Collect the Objects
Geometry and Spatial Sense	Geometric Properties	Create models and skeletons of prisms and pyramids, using concrete materials, and describe their geometric properties.	Teacher directed
Geometry and Spatial Sense	Geometric Properties	Locate the line of symmetry in a two-dimensional shape.	Symmetry Lines of Symmetry
Geometry and Spatial Sense	Geometric Relationships	Compose and describe pictures, designs, and patterns by combining two-dimensional shapes.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Compose and decompose two-dimensional shapes.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Cover an outline puzzle with two-dimensional shapes in more than one way.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Build a structure using three-dimensional figures, and describe the two-dimensional shapes and three-dimensional figures in the structure.	Teacher directed
Geometry and Spatial Sense	Location and Movement	Describe the relative locations and the movements of objects on a map.	Following Directions
Geometry and Spatial Sense	Location and Movement	Draw simple maps of familiar settings, and describe the relative locations of objects on the maps.	Teacher directed

Grade 2

Strand	Substrand	Specific Expectation	Activities
Geometry and Spatial Sense	Location and Movement	Create and describe symmetrical designs using a variety of tools.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Identify and describe, through investigation, growing patterns and shrinking patterns generated by the repeated addition or subtraction of 1's, 2's, 5's, 10's, and 25's on a number line and on a hundreds chart.	Counting on a 100 grid
Patterning and Algebra	Patterns and Relationships	Identify, describe, and create, through investigation, growing patterns and shrinking patterns involving addition and subtraction, with and without the use of calculators.	Count Forward Patterns Count Backward Patterns Describing Patterns
Patterning and Algebra	Patterns and Relationships	Identify repeating, growing, and shrinking patterns found in real-life contexts.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Represent a given growing or shrinking pattern in a variety of ways.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Create growing or shrinking patterns.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Create a repeating pattern by combining two attributes.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Demonstrate, through investigation, an understanding that a pattern results from repeating an operation or making a repeated change to an attribute.	Count Forward Patterns Count Backward Patterns Describing Patterns
Patterning and Algebra	Expressions and Equality	Demonstrate an understanding of the concept of equality by partitioning whole numbers to 18 in a variety of ways, using concrete materials.	Composing Additions to 20
Patterning and Algebra	Expressions and Equality	Represent, through investigation with concrete materials and pictures, two number expressions that are equal, using the equal sign.	Composing Additions to 20 Composing Numbers to 20
Patterning and Algebra	Expressions and Equality	Determine the missing number in equations involving addition and subtraction to 18, using a variety of tools and strategies.	Composing Additions to 20 Commutative Property of Addition Adding In Any Order Fact Families: Add and Subtract Missing Numbers
Patterning and Algebra	Expressions and Equality	Identify, through investigation, and use the commutative property of addition to facilitate computation with whole numbers.	Commutative Property of Addition Add 3 Numbers Using Bonds to 10
Patterning and Algebra	Expressions and Equality	Identify, through investigation, the properties of zero in addition and subtraction.	Teacher directed

Grade 2

Strand	Substrand	Specific Expectation	Activities
Data Management and Probability	Collection and Organization of Data	Demonstrate an ability to organize objects into categories, by sorting and classifying objects using two attributes simultaneously.	Sorting Data
Data Management and Probability	Collection and Organization of Data	Gather data to answer a question, using a simple survey with a limited number of responses.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Collect and organize primary data that is categorical or discrete, and display the data using one-to-one correspondence in concrete graphs, pictographs, line plots, simple bar graphs, and other graphic organizers, with appropriate titles and labels and with labels ordered appropriately along horizontal axes, as needed.	Sorting Data Tallies Making Picture Graphs: With Scale
Data Management and Probability	Data Relationships	Read primary data presented in concrete graphs, pictographs, line plots, simple bar graphs, and other graphic organizers, and describe the data using mathematical language.	Pictographs Bar Graphs 1 Bar Graphs 2 Read Graphs Reading from a Bar Chart
Data Management and Probability	Data Relationships	Pose and answer questions about class-generated data in concrete graphs, pictographs, line plots, simple bar graphs, and tally charts.	Teacher directed
Data Management and Probability	Data Relationships	Distinguish between numbers that represent data values and numbers that represent the frequency of an event.	Teacher directed
Data Management and Probability	Data Relationships	Demonstrate an understanding of data displayed in a graph, by comparing different parts of the data and by making statements about the data as a whole.	Pictographs Bar Graphs 1 Bar Graphs 2 Read Graphs Reading from a Bar Chart
Data Management and Probability	Probability	Describe probability as a measure of the likelihood that an event will occur, using mathematical language.	Will it Happen? Most Likely and Least Likely What are the Chances?
Data Management and Probability	Probability	Describe the probability that an event will occur, through investigation with simple games and probability experiments and using mathematical language.	Introductory Probability

Grade 3

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order whole numbers to 1000, using a variety of tools.	Model Numbers Understanding Place Value 1 Place Value 2 Place Value Partitioning Which is Smaller? Which is Bigger?
Number Sense and Numeration	Quantity Relationships	Read and print in words whole numbers to one hundred, using meaningful contexts.	Reading Numbers to 30
Number Sense and Numeration	Quantity Relationships	Identify and represent the value of a digit in a number according to its position in the number.	Understanding Place Value 1 Place Value to Thousands
Number Sense and Numeration	Quantity Relationships	Compose and decompose three-digit numbers into hundreds, tens, and ones in a variety of ways, using concrete materials.	Understanding Place Value 1 Place Value Partitioning Place Value 2
Number Sense and Numeration	Quantity Relationships	Round two-digit numbers to the nearest ten, in problems arising from real-life situations.	Nearest 10?
Number Sense and Numeration	Quantity Relationships	Represent and explain, using concrete materials, the relationship among the numbers 1, 10, 100, and 1000.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Divide whole objects and sets of objects into equal parts, and identify the parts using fractional names, without using numbers in standard fractional notation.	Shade Fractions Partition into Equal Parts
Number Sense and Numeration	Quantity Relationships	Represent and describe the relationships between coins and bills up to $10.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Estimate, count, and represent (using the $ symbol) the value of a collection of coins and bills with a maximum value of $10.	Money Who's got the Money?
Number Sense and Numeration	Quantity Relationships	Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1000.	Teacher directed
Number Sense and Numeration	Counting	Count forward by 1's, 2's, 5's, 10's, and 100's to 1000 from various starting points, and by 25's to 1000 starting from multiples of 25, using a variety of tools and strategies.	Count by Twos Count by Fives Count to Tens Count by 2s, 5s and 10s Counting on a 100 grid
Number Sense and Numeration	Counting	Count backwards by 2's, 5's, and 10's from 100 using multiples of 2, 5, and 10 as starting points, and count backwards by 100's from 1000 and any number less than 1000, using a variety of tools and strategies.	Counting on a 100 grid
Number Sense and Numeration	Operational Sense	Solve problems involving the addition and subtraction of two-digit numbers, using a variety of mental strategies.	Mental Addition Mental Subtraction Add 3 Numbers: Bonds to Multiples of 10 Add 3 Numbers: Bonds to 100

Grade 3

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Operational Sense	Add and subtract three-digit numbers, using concrete materials, student-generated algorithms, and standard algorithms.	Add 3-Digit Numbers Add 3-Digit Numbers: Regroup 3-Digit Differences 3-Digit Differences: 1 Regrouping 3-Digit Differences: 2 Regroupings 3-Digit Differences with Zeros
Number Sense and Numeration	Operational Sense	Use estimation when solving problems involving addition and subtraction, to help judge the reasonableness of a solution.	Estimate Sums Estimate Differences
Number Sense and Numeration	Operational Sense	Add and subtract money amounts, using a variety of tools, to make simulated purchases and change for amounts up to $10.	How much Change?
Number Sense and Numeration	Operational Sense	Relate multiplication of one-digit numbers and division by one-digit divisors to real-life situations, using a variety of tools and strategies.	Making Equal Groups Fill the Jars Divide Into Equal Groups
Number Sense and Numeration	Operational Sense	Multiply to 7 x 7 and divide to 49 ÷ 7, using a variety of mental strategies.	Groups of Two Groups of Three Groups of Four Groups of Five Groups of Six Groups of Seven Arrays 1 Multiplication Arrays Model Multiplication to 5 x 5 Times tables Frog Jump Multiplication Dividing Twos Dividing Threes Dividing Fours Dividing Fives Dividing Sixes Dividing Sevens
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record length, height, and distance, using standard units.	How Long is That?
Measurement	Attributes, Units, and Measurement Sense	Draw items using a ruler, given specific lengths in centimetres.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Read time using analogue clocks, to the nearest five minutes, and using digital clocks, and represent time in 12-hour notation.	Five Minute Times
Measurement	Attributes, Units, and Measurement Sense	Estimate, read, and record positive temperatures to the nearest degree Celsius.	What's the Temperature (Celsius)?
Measurement	Attributes, Units, and Measurement Sense	Identify benchmarks for freezing, cold, cool, warm, hot, and boiling temperatures as they relate to water and for cold, cool, warm, and hot temperatures as they relate to air.	Teacher directed

Grade 3

Strand	Substrand	Specific Expectation	Activities
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record the perimeter of two-dimensional shapes, through investigation using standard units.	Perimeter Calculate Perimeter of Squares and Rectangles
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record area.	Area of Shapes Equal Areas Bigger or Smaller Shape
Measurement	Attributes, Units, and Measurement Sense	Choose benchmarks for a kilogram and a litre to help them perform measurement tasks.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record the mass of objects, using the standard unit of the kilogram or parts of a kilogram.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record the capacity of containers, using the standard unit of the litre or parts of a litre.	Using a Litre
Measurement	Measurement Relationships	Compare standard units of length, and select and justify the most appropriate standard unit to measure length.	Teacher directed
Measurement	Measurement Relationships	Compare and order objects on the basis of linear measurements in centimetres and/or metres in problem-solving contexts.	Teacher directed
Measurement	Measurement Relationships	Compare and order various shapes by area, using congruent shapes and grid paper for measuring.	Equal Areas Bigger or Smaller Shape
Measurement	Measurement Relationships	Describe, through investigation using grid paper, the relationship between the size of a unit of area and the number of units needed to cover a surface.	Equal Areas Bigger or Smaller Shape
Measurement	Measurement Relationships	Compare and order a collection of objects, using standard units of mass and/or capacity.	Teacher directed
Measurement	Measurement Relationships	Solve problems involving the relationships between minutes and hours, hours and days, days and weeks, and weeks and years, using a variety of tools.	Teacher directed
Geometry and Spatial Sense	Geometric Properties	Use a reference tool to identify right angles and to describe angles as greater than, equal to, or less than a right angle.	Right Angle Relation What Type of Angle?
Geometry and Spatial Sense	Geometric Properties	Identify and compare various polygons and sort them by their geometric properties.	Collect the Polygons Count Sides and Corners
Geometry and Spatial Sense	Geometric Properties	Compare various angles, using concrete materials and pictorial representations, and describe angles as bigger than, smaller than, or about the same as other angles.	Equal Angles Comparing Angles

Grade 3

Strand	Substrand	Specific Expectation	Activities
Geometry and Spatial Sense	Geometric Properties	Compare and sort prisms and pyramids by geometric properties using concrete materials.	Collect the Objects How Many Faces? How many Edges? How many Corners? Faces, Edges and Vertices
Geometry and Spatial Sense	Geometric Properties	Construct rectangular prisms, and describe geometric properties of the prisms.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Solve problems requiring the greatest or least number of two-dimensional shapes needed to compose a larger shape in a variety of ways.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Explain the relationships between different types of quadrilaterals.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Identify and describe the two-dimensional shapes that can be found in a three-dimensional figure.	Relate Shapes and Solids
Geometry and Spatial Sense	Geometric Relationships	Describe and name prisms and pyramids by the shape of their base.	What Pyramid am I? What Prism am I?
Geometry and Spatial Sense	Geometric Relationships	Identify congruent two-dimensional shapes by manipulating and matching concrete materials.	Congruent Figures (Dot Grid) Congruent Figures (Grid)
Geometry and Spatial Sense	Location and Movement	Describe movement from one location to another using a grid map.	Following Directions
Geometry and Spatial Sense	Location and Movement	Identify flips, slides, and turns, through investigation using concrete materials and physical motion, and name flips, slides, and turns as reflections, translations, and rotations.	Flip, Slide, Turn Transformations
Geometry and Spatial Sense	Location and Movement	Complete and describe designs and pictures of images that have a vertical, horizontal, or diagonal line of symmetry.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Identify, extend, and create a repeating pattern involving two attributes, using a variety of tools.	Simple Patterns Pattern Error Missing it!
Patterning and Algebra	Patterns and Relationships	Identify and describe, through investigation, number patterns involving addition, subtraction, and multiplication, represented on a number line, on a calendar, and on a hundreds chart.	Counting on a 100 grid Describing Patterns
Patterning and Algebra	Patterns and Relationships	Extend repeating, growing, and shrinking number patterns.	Increasing Patterns Decreasing Patterns Pick the Next Number
Patterning and Algebra	Patterns and Relationships	Create a number pattern involving addition or subtraction, given a pattern represented on a number line or a pattern rule expressed in words.	Teacher directed

Grade 3

Strand	Substrand	Specific Expectation	Activities
Patterning and Algebra	Patterns and Relationships	Represent simple geometric patterns using a number sequence, a number line, or a bar graph.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Demonstrate, through investigation, an understanding that a pattern results from repeating an action, repeating an operation, using a transformation, or making some other repeated change to an attribute.	Describing Patterns
Patterning and Algebra	Expressions and Equality	Determine, through investigation, the inverse relationship between addition and subtraction.	Related Facts 1 Fact Families: Add and Subtract
Patterning and Algebra	Expressions and Equality	Determine, the missing number in equations involving addition and subtraction of one- and two-digit numbers, using a variety of tools and strategies.	Missing Numbers Missing Values
Patterning and Algebra	Expressions and Equality	Identify, through investigation, the properties of zero and one in multiplication.	Teacher directed
Patterning and Algebra	Expressions and Equality	Identify, through investigation, and use the associative property of addition to facilitate computation with whole numbers.	Addition Properties
Data Management and Probability	Collection and Organization of Data	Demonstrate an ability to organize objects into categories, by sorting and classifying objects using two or more attributes simultaneously.	Sort It
Data Management and Probability	Collection and Organization of Data	Collect data by conducting a simple survey about themselves, their environment, issues in their school or community, or content from another subject.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Collect and organize categorical or discrete primary data and display the data in charts, tables, and graphs (including vertical and horizontal bar graphs), with appropriate titles and labels and with labels ordered appropriately along horizontal axes, as needed, using many-to-one correspondence.	Making Picture Graphs: With Scale Sorting Data
Data Management and Probability	Data Relationships	Read primary data presented in charts, tables, and graphs (including vertical and horizontal bar graphs), then describe the data using comparative language, and describe the shape of the data.	Teacher directed
Data Management and Probability	Data Relationships	Interpret and draw conclusions from data presented in charts, tables, and graphs.	Pictographs Bar Graphs 1 Bar Graphs 2 Interpreting Tables
Data Management and Probability	Data Relationships	Demonstrate an understanding of mode, and identify the mode in a set of data.	Mode

Grade 3

Strand	Substrand	Specific Expectation	Activities
Data Management and Probability	Probability	Predict the frequency of an outcome in a simple probability experiment or game, then perform the experiment, and compare the results with the predictions, using mathematical language.	Teacher directed
Data Management and Probability	Probability	Demonstrate, through investigation, an understanding of fairness in a game and relate this to the occurrence of equally likely outcomes.	Fair Games

Grade 4

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order whole numbers to 10 000, using a variety of tools.	Greater Than or Less Than? Place Value 3 Understanding Place Value 2
Number Sense and Numeration	Quantity Relationships	Demonstrate an understanding of place value in whole numbers and decimal numbers from 0.1 to 10 000, using a variety of tools and strategies.	Place Value to Thousands Place Value 3
Number Sense and Numeration	Quantity Relationships	Read and print in words whole numbers to one thousand, using meaningful contexts.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Round four-digit whole numbers to the nearest ten, hundred, and thousand, in problems arising from real-life situations.	Nearest Ten? Nearest Hundred? Nearest Thousand?
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order decimal numbers to tenths, using a variety of tools and using standard decimal notation.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Represent fractions using concrete materials, words, and standard fractional notation, and explain the meaning of the denominator as the number of the fractional parts of a whole or a set, and the numerator as the number of fractional parts being considered.	What Fraction is Shaded? Identifying Fractions on a Number Line Model Fractions Shade Fractions
Number Sense and Numeration	Quantity Relationships	Compare and order fractions by considering the size and the number of fractional parts.	Comparing Fractions 1 Compare Fractions 1a Compare Fractions 1b
Number Sense and Numeration	Quantity Relationships	Compare fractions to the benchmarks of 0, 1/2, and 1.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Demonstrate and explain the relationship between equivalent fractions, using concrete materials and drawings.	Equivalent Fraction Wall 1 Shading Equivalent Fractions
Number Sense and Numeration	Quantity Relationships	Read and represent money amounts to $100.	Money Who's got the Money?
Number Sense and Numeration	Quantity Relationships	Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 10 000.	Teacher directed
Number Sense and Numeration	Counting	Count forward by halves, thirds, fourths, and tenths to beyond one whole, using concrete materials and number lines.	Teacher directed
Number Sense and Numeration	Counting	Count forward by tenths from any decimal number expressed to one decimal place, using concrete materials and number lines.	Teacher directed

Grade 4

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Operational Sense	Add and subtract two-digit numbers, using a variety of mental strategies.	Mental Addition Add Two 2-Digit Numbers Add Two 2-Digit Numbers: Regroup Add 3 Numbers: Bonds to 100 Add Three 2-Digit Numbers Add Three 2-Digit Numbers: Regroup Mental Subtraction Decompose Numbers to Subtract 2-Digit Differences 2-Digit Differences: Regroup
Number Sense and Numeration	Operational Sense	Solve problems involving the addition and subtraction of four-digit numbers, using student-generated algorithms and standard algorithms.	Adding Colossal Columns Subtracting Colossal Columns
Number Sense and Numeration	Operational Sense	Add and subtract decimal numbers to tenths, using concrete materials and student-generated algorithms.	Teacher directed
Number Sense and Numeration	Operational Sense	Add and subtract money amounts by making simulated purchases and providing change for amounts up to $100, using a variety of tools.	Teacher directed
Number Sense and Numeration	Operational Sense	Multiply to 9 x 9 and divide to 81 ÷ 9, using a variety of mental strategies.	Fact Families: Multiply and Divide Arrays 1 Groups of Seven Groups of Eight Groups of Nine Dividing Sevens Dividing Eights Dividing Nines Times Tables
Number Sense and Numeration	Operational Sense	Solve problems involving the multiplication of one-digit whole numbers, using a variety of mental strategies.	Times Tables
Number Sense and Numeration	Operational Sense	Multiply whole numbers by 10, 100, and 1000, and divide whole numbers by 10 and 100, using mental strategies.	Multiplying by 10, 100, 1000 Dividing by 10, 100, 1000
Number Sense and Numeration	Operational Sense	Multiply two-digit whole numbers by one-digit whole numbers, using a variety of tools, student-generated algorithms, and standard algorithms.	Multiply: 2-Digit by 1-Digit
Number Sense and Numeration	Operational Sense	Divide two-digit whole numbers by one-digit whole numbers, using a variety of tools and student-generated algorithms.	Halve it! Divide: 1-Digit Divisor 1
Number Sense and Numeration	Operational Sense	Use estimation when solving problems involving the addition, subtraction, and multiplication of whole numbers, to help judge the reasonableness of a solution.	Estimate Sums Estimate Differences
Number Sense and Numeration	Proportional Relationships	Describe relationships that involve simple whole-number multiplication.	Teacher directed

Grade 4

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Proportional Relationships	Determine and explain, through investigation, the relationship between fractions and decimals to tenths, using a variety of tools and strategies.	Teacher directed
Number Sense and Numeration	Proportional Relationships	Demonstrate an understanding of simple multiplicative relationships involving unit rates, through investigation using concrete materials and drawings.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record length, height, and distance, using standard units.	How Long is That? Measuring Length
Measurement	Attributes, Units, and Measurement Sense	Draw items using a ruler, given specific lengths in millimetres or centimetres.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and represent time intervals to the nearest minute.	What is the Time?
Measurement	Attributes, Units, and Measurement Sense	Estimate and determine elapsed time, with and without using a time line, given the durations of events expressed in five-minute intervals, hours, days, weeks, months, or years.	Time Mentals Elapsed Time
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure using a variety of tools and strategies, and record the perimeter and area of polygons.	Perimeter Perimeter: Squares and Rectangles Area of Shapes Equal Areas
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record the mass of objects, using the standard units of the kilogram and the gram.	How Heavy?
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record the capacity of containers, using the standard units of the litre and the millilitre.	Using a Litre
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure using concrete materials, and record volume, and relate volume to the space taken up by an object.	Comparing Volume How many Blocks? Volume of Solids and Prisms – 1 cm^3 blocks
Measurement	Measurement Relationships	Describe, through investigation, the relationship between various units of length.	Teacher directed
Measurement	Measurement Relationships	Select and justify the most appropriate standard unit to measure the side lengths and perimeters of various polygons.	Teacher directed
Measurement	Measurement Relationships	Determine, through investigation, the relationship between the side lengths of a rectangle and its perimeter and area.	Perimeter, Area, Dimension Change
Measurement	Measurement Relationships	Pose and solve meaningful problems that require the ability to distinguish perimeter and area.	Teacher directed

Grade 4

Strand	Substrand	Specific Expectation	Activities
Measurement	Measurement Relationships	Compare and order a collection of objects, using standard units of mass and/or capacity.	Teacher directed
Measurement	Measurement Relationships	Determine, through investigation, the relationship between grams and kilograms.	Teacher directed
Measurement	Measurement Relationships	Determine, through investigation, the relationship between millilitres and litres.	Teacher directed
Measurement	Measurement Relationships	Select and justify the most appropriate standard unit to measure mass and the most appropriate standard unit to measure the capacity of a container.	Which Measuring Tool?
Measurement	Measurement Relationships	Solve problems involving the relationship between years and decades, and between decades and centuries.	Teacher directed
Measurement	Measurement Relationships	Compare, using a variety of tools, two-dimensional shapes that have the same perimeter or the same area.	Congruent Figures (Grid) Equal Areas
Geometry and Spatial Sense	Geometric Properties	Draw the lines of symmetry of two-dimensional shapes, through investigation using a variety of tools and strategies.	Lines of Symmetry
Geometry and Spatial Sense	Geometric Properties	Identify and compare different types of quadrilaterals and sort and classify them by their geometric properties.	Collect the Shapes 2
Geometry and Spatial Sense	Geometric Properties	Identify benchmark angles, using a reference tool, and compare other angles to these benchmarks.	Right Angle Relation What Type of Angle? Comparing Angles
Geometry and Spatial Sense	Geometric Properties	Relate the names of the benchmark angles to their measures in degrees.	Teacher directed
Geometry and Spatial Sense	Geometric Properties	Identify and describe prisms and pyramids, and classify them by their geometric properties, using concrete materials.	Prisms and Pyramids Faces, Edges and Vertices
Geometry and Spatial Sense	Geometric Relationships	Construct a three-dimensional figure from a picture or model of the figure, using connecting cubes.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Construct skeletons of three-dimensional figures, using a variety of tools, and sketch the skeletons.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Draw and describe nets of rectangular and triangular prisms.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Construct prisms and pyramids from given nets.	Teacher directed

Grade 4

Strand	Substrand	Specific Expectation	Activities
Geometry and Spatial Sense	Geometric Relationships	Construct three-dimensional figures, using only congruent shapes.	Teacher directed
Geometry and Spatial Sense	Location and Movement	Identify and describe the general location of an object using a grid system.	Coordinate Meeting Place Map Coordinates Using a Key
Geometry and Spatial Sense	Location and Movement	Identify, perform, and describe reflections using a variety of tools.	Teacher directed
Geometry and Spatial Sense	Location and Movement	Create and analyse symmetrical designs by reflecting a shape, or shapes, using a variety of tools, and identify the congruent shapes in the designs.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Extend, describe, and create repeating, growing, and shrinking number patterns.	Pick the Next Number Increasing Patterns Decreasing Patterns Describing Patterns
Patterning and Algebra	Patterns and Relationships	Connect each term in a growing or shrinking pattern with its term number, and record the patterns in a table of values that shows the term number and the term.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Create a number pattern involving addition, subtraction, or multiplication, given a pattern rule expressed in words.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Make predictions related to repeating geometric and numeric patterns.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Extend and create repeating patterns that result from reflections, through investigation using a variety of tools.	Teacher directed
Patterning and Algebra	Expressions and Equality	Determine, through investigation, the inverse relationship between multiplication and division.	Related Facts 2 Fact Families: Multiply and Divide
Patterning and Algebra	Expressions and Equality	Determine the missing number in equations involving multiplication of one- and two-digit numbers, using a variety of tools and strategies.	Equivalent Facts: Multiply
Patterning and Algebra	Expressions and Equality	Identify, through investigation, and use the commutative property of multiplication to facilitate computation with whole numbers.	Multiply 3 single-digit numbers
Patterning and Algebra	Expressions and Equality	Identify, through investigation, and use the distributive property of multiplication over addition to facilitate computation with whole numbers.	Teacher directed

Grade 4

Strand	Substrand	Specific Expectation	Activities
Data Management and Probability	Collection and Organization of Data	Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or the community, or content from another subject, and record observations or measurements.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Collect and organize discrete primary data and display the data in charts, tables, and graphs (including stem-and-leaf plots and double bar graphs) that have appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools.	Teacher directed
Data Management and Probability	Data Relationships	Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs.	Bar Chart Bar Graphs 2 Stem and Leaf Plots: Concept Interpreting Data Tables
Data Management and Probability	Data Relationships	Demonstrate, through investigation, an understanding of median, and determine the median of a set of data.	The Median Median Median from Stem and Leaf Plot
Data Management and Probability	Data Relationships	Describe the shape of a set of data across its range of values, using charts, tables, and graphs.	Teacher directed
Data Management and Probability	Data Relationships	Compare similarities and differences between two related sets of data, using a variety of strategies.	Teacher directed
Data Management and Probability	Probability	Predict the frequency of an outcome in a simple probability experiment, explaining their reasoning; conduct the experiment; and compare the result with the prediction.	Teacher directed
Data Management and Probability	Probability	Determine, through investigation, how the number of repetitions of a probability experiment can affect the conclusions drawn.	Teacher directed

Grade 5

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order whole numbers and decimal numbers from 0.01 to 100 000, using a variety of tools.	Place Value to Thousands Decimal Place Value Understanding Place Value 3 Comparing Decimals 1 Decimal Order 1 Greater Than or Less Than?
Number Sense and Numeration	Quantity Relationships	Demonstrate an understanding of place value in whole numbers and decimal numbers from 0.01 to 100 000, using a variety of tools and strategies.	Place Value to Thousands Decimal Place Value Understanding Place Value 3
Number Sense and Numeration	Quantity Relationships	Read and print in words whole numbers to ten thousand, using meaningful contexts.	Numbers in Words
Number Sense and Numeration	Quantity Relationships	Round decimal numbers to the nearest tenth, in problems arising from real-life situations.	Rounding Decimals 1
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order fractional amounts with like denominators, including proper and improper fractions and mixed numbers, using a variety of tools and using standard fractional notation.	Identifying Fractions on a Number Line Identifying Fractions Beyond 1 What Fraction is Shaded? Compare Fractions 1a Part-Whole Rods 1
Number Sense and Numeration	Quantity Relationships	Demonstrate and explain the concept of equivalent fractions, using concrete materials.	Equivalent Fraction Wall 1 Equivalent Fraction Wall 2 Shading Equivalent Fractions
Number Sense and Numeration	Quantity Relationships	Demonstrate and explain equivalent representations of a decimal number, using concrete materials and drawings.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Read and write money amounts to $1000.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 100 000.	Teacher directed
Number Sense and Numeration	Counting	Count forward by hundredths from any decimal number expressed to two decimal places, using concrete materials and number lines.	Teacher directed
Number Sense and Numeration	Operational Sense	Solve problems involving the addition, subtraction, and multiplication of whole numbers, using a variety of mental strategies.	Mental Addition Compensation – Add Mental Subtraction Compensation – Subtract Decompose Numbers to Subtract Bump Add and Subtract Jump Add and Subtract Mental Methods Multiplication 1 Mental Methods Multiplication 2
Number Sense and Numeration	Operational Sense	Add and subtract decimal numbers to hundredths, including money amounts, using concrete materials, estimation, and algorithms.	Subtract Decimals 1 Decimal Complements

Grade 5

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Operational Sense	Multiply two-digit whole numbers by two-digit whole numbers, using estimation, student-generated algorithms, and standard algorithms.	Multiply 2 Digits Area Model Double and Halve to Multiply Mental Methods Multiplication 1 Mental Methods Multiplication 2
Number Sense and Numeration	Operational Sense	Divide three-digit whole numbers by one-digit whole numbers, using concrete materials, estimation, student-generated algorithms, and standard algorithms.	Divide: 1-Digit Divisor 2 Divide: 1-Digit Divisor, Remainder Estimate Quotients
Number Sense and Numeration	Operational Sense	Multiply decimal numbers by 10, 100, 1000, and 10 000,and divide decimal numbers by 10 and 100, using mental strategies.	Multiply Decimals: 10, 100, 1000 Divide: Decimals: 10, 100, 1000
Number Sense and Numeration	Operational Sense	Use estimation when solving problems involving the addition, subtraction, multiplication, and division of whole numbers, to help judge the reasonableness of a solution.	Estimate Sums Estimate Differences Estimate Quotients
Number Sense and Numeration	Proportional Relationships	Describe multiplicative relationships between quantities by using simple fractions and decimals.	Teacher directed
Number Sense and Numeration	Proportional Relationships	Determine and explain, through investigation using concrete materials, drawings, and calculators, the relationship between fractions.	Teacher directed
Number Sense and Numeration	Proportional Relationships	Demonstrate an understanding of simple multiplicative relationships involving whole-number rates, through investigation using concrete materials and drawings.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and represent time intervals to the nearest second.	What is the Time?
Measurement	Attributes, Units, and Measurement Sense	Estimate and determine elapsed time, with and without using a time line, given the durations of events expressed in minutes, hours, days, weeks, months, or years.	Time Mentals Elapsed Time What Time Will it Be? Using Timetables
Measurement	Attributes, Units, and Measurement Sense	Measure and record temperatures to determine and represent temperature changes over time.	What's the Temperature (Celsius)?
Measurement	Attributes, Units, and Measurement Sense	Estimate and measure the perimeter and area of regular and irregular polygons, using a variety of tools and strategies.	Perimeter of Shapes Perimeter: Triangles Perimeter: Squares and Rectangles Perimeter Detectives 1 Area of Shapes Area: Squares and Rectangles Area: Compound Figures
Measurement	Measurement Relationships	Select and justify the most appropriate standard unit to measure length, height, width, and distance, and to measure the perimeter of various polygons.	Teacher directed

Grade 5

Strand	Substrand	Specific Expectation	Activities
Measurement	Measurement Relationships	Solve problems requiring conversion from metres to centimetres and from kilometres to metres.	Centimetres and Metres Metres and Kilometres
Measurement	Measurement Relationships	Solve problems involving the relationship between a 12-hour clock and a 24-hour clock.	24 Hour Time
Measurement	Measurement Relationships	Create, through investigation using a variety of tools and strategies, two-dimensional shapes with the same perimeter or the same area.	Teacher directed
Measurement	Measurement Relationships	Determine, through investigation using a variety of tools and strategies, the relationships between the length and width of a rectangle and its area and perimeter, and generalize to develop the formulas.	Teacher directed
Measurement	Measurement Relationships	Solve problems requiring the estimation and calculation of perimeters and areas of rectangles.	Perimeter: Squares and Rectangles Area: Squares and Rectangles
Measurement	Measurement Relationships	Determine, through investigation, the relationship between capacity and volume, by comparing the volume of an object with the amount of liquid it can contain or displace.	Filling Fast!
Measurement	Measurement Relationships	Determine, through investigation using stacked congruent rectangular layers of concrete materials, the relationship between the height, the area of the base, and the volume of a rectangular prism, and generalize to develop the formula.	Teacher directed
Measurement	Measurement Relationships	Select and justify the most appropriate standard unit to measure mass.	Teacher directed
Geometry and Spatial Sense	Geometric Properties	Distinguish among polygons, regular polygons, and other two-dimensional shapes.	Collect More Shapes Collect the Polygons
Geometry and Spatial Sense	Geometric Properties	Distinguish among prisms, right prisms, pyramids, and other three-dimensional figures.	Prisms and Pyramids Collect the Objects 1 Collect the Objects 2
Geometry and Spatial Sense	Geometric Properties	Identify and classify acute, right, obtuse, and straight angles.	What Type of Angle? Classifying Angles
Geometry and Spatial Sense	Geometric Properties	Measure and construct angles up to 90°, using a protractor.	Measuring Angles Estimating Angles
Geometry and Spatial Sense	Geometric Properties	Identify triangles, and classify them according to angle and side properties.	Triangle Tasters Triangles: Acute, Right, Obtuse
Geometry and Spatial Sense	Geometric Properties	Construct triangles, using a variety of tools, given acute or right angles and side measurements.	Teacher directed

Grade 5

Strand	Substrand	Specific Expectation	Activities
Geometry and Spatial Sense	Geometric Relationships	Identify prisms and pyramids from their nets.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Construct nets of prisms and pyramids, using a variety of tools.	Teacher directed
Geometry and Spatial Sense	Location and Movement	Locate an object using the cardinal directions and a coordinate system.	What Direction was That? More Directions! Using a Key Map Coordinates
Geometry and Spatial Sense	Location and Movement	Compare grid systems commonly used on maps.	Teacher directed
Geometry and Spatial Sense	Location and Movement	Identify, perform, and describe translations, using a variety of tools.	Teacher directed
Geometry and Spatial Sense	Location and Movement	Create and analyse designs by translating and/or reflecting a shape, or shapes, using a variety of tools.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Create, identify, and extend numeric and geometric patterns, using a variety of tools.	Pattern Error Increasing Patterns Decreasing Patterns Describing Patterns
Patterning and Algebra	Patterns and Relationships	Build a model to represent a number pattern presented in a table of values that shows the term number and the term.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Make a table of values for a pattern that is generated by adding or subtracting a number to get the next term, or by multiplying or dividing by a constant to get the next term, given either the sequence or the pattern rule in words.	Tables of Values
Patterning and Algebra	Patterns and Relationships	Make predictions related to growing and shrinking geometric and numeric patterns.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Extend and create repeating patterns that result from translations, through investigation using a variety of tools.	Teacher directed
Patterning and Algebra	Variables, Expressions, and Equations	Demonstrate, through investigation, an understanding of variables as changing quantities, given equations with letters or other symbols that describe relationships involving simple rates.	Teacher directed
Patterning and Algebra	Variables, Expressions, and Equations	Demonstrate, through investigation, an understanding of variables as unknown quantities represented by a letter or other symbol.	Teacher directed

Grade 5

Strand	Substrand	Specific Expectation	Activities
Patterning and Algebra	Variables, Expressions, and Equations	Determine the missing number in equations involving addition, subtraction, multiplication, or division and one- or two-digit numbers, using a variety of tools and strategies.	Missing Values Find the Missing Number 1 Missing Numbers: Variables Missing Numbers: × and ÷ facts
Data Management and Probability	Collection and Organization of Data	Distinguish between discrete data and continuous data.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject, and record observations or measurements.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Collect and organize discrete or continuous primary data and secondary data and display the data in charts, tables, and graphs (including broken-line graphs) that have appropriate titles, labels, and scales that suit the range and distribution of the data using a variety of tools.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Demonstrate an understanding that sets of data can be samples of larger populations.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Describe, through investigation, how a set of data is collected and explain whether the collection method is appropriate.	Teacher directed
Data Management and Probability	Data Relationships	Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs.	Tally Charts Reading from a Bar Chart Line Graphs: Interpretation Stem and Leaf Plots: Concept Interpreting Tables
Data Management and Probability	Data Relationships	Calculate the mean for a small set of data and use it to describe the shape of the data set across its range of values, using charts, tables, and graphs.	The Mean
Data Management and Probability	Data Relationships	Compare similarities and differences between two related sets of data, using a variety of strategies.	Teacher directed
Data Management and Probability	Probability	Determine and represent all the possible outcomes in a simple probability experiment, using systematic lists and area models.	Possible Outcomes
Data Management and Probability	Probability	Represent, using a common fraction, the probability that an event will occur in simple games and probability experiments.	Introductory Probability Find the Probability Probability Scale
Data Management and Probability	Probability	Pose and solve simple probability problems, and solve them by conducting probability experiments and selecting appropriate methods of recording the results.	Teacher directed

Grade 6

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order whole numbers and decimal numbers from 0.001 to 1 000 000, using a variety of tools.	Put in Order 1 Comparing Decimals Decimal Order Decimals on the Number Line Decimals on a Number Line
Number Sense and Numeration	Quantity Relationships	Demonstrate an understanding of place value in whole numbers and decimal numbers from 0.001 to 1 000 000, using a variety of tools and strategies.	Place Value to Millions Place Value 1 (×10 and ÷10) Place Value 2 (×10 and ÷10) Decimal Place Value
Number Sense and Numeration	Quantity Relationships	Read and print in words whole numbers to one hundred thousand, using meaningful contexts.	Numbers from Words to Digits 1
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers, using a variety of tools and using standard fractional notation.	Comparing Fractions 1 Comparing Fractions 2 Ordering Fractions 1 Equivalent Fractions on a Number Line 2 Equivalent Fraction Wall 2 Identifying Fractions Beyond 1 Mixed and Improper Fractions on a Number Line
Number Sense and Numeration	Quantity Relationships	Estimate quantities using benchmarks of 10%, 25%, 50%, 75%, and 100%.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1 000 000.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Identify composite numbers and prime numbers, and explain the relationship between them.	Prime or Composite? Product of Prime Factors
Number Sense and Numeration	Operational Sense	Use a variety of mental strategies to solve addition, subtraction, multiplication, and division problems involving whole numbers.	Addition Properties Mental Addition Compensation – Add Mental Subtraction Compensation – Subtract Jump Add and Subtract Multiplication Properties Mental Methods Multiplication 1 Mental Methods Multiplication 2 Double and Halve to Multiply Mental Methods Division 1 Mental Methods Division 2
Number Sense and Numeration	Operational Sense	Solve problems involving the multiplication and division of whole numbers (four-digit by two-digit), using a variety of tools and strategies.	Contracted Multiplication Long Multiplication Divide: 2-Digit Divisor, Remainder Long Division
Number Sense and Numeration	Operational Sense	Add and subtract decimal numbers to thousandths, using concrete materials, estimation, algorithms, and calculators.	Add Decimals 1 Add Decimals 2 Estimate Decimal Sums 1 Estimate Decimal Sums 2 Subtract Decimals 2 Estimate Decimal Differences 1 Estimate Decimal Differences 2

Grade 6

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Operational Sense	Multiply and divide decimal numbers to tenths by whole numbers, using concrete materials, estimation, algorithms, and calculators.	Teacher directed
Number Sense and Numeration	Operational Sense	Multiply whole numbers by 0.1, 0.01, and 0.001 using mental strategies.	Teacher directed
Number Sense and Numeration	Operational Sense	Multiply and divide decimal numbers by 10, 100, 1000,and 10 000 using mental strategies.	Multiply Decimals and Powers of 10 Divide by Powers of 10
Number Sense and Numeration	Operational Sense	Use estimation when solving problems involving the addition and subtraction of whole numbers and decimals, to help judge the reasonableness of a solution.	Estimate Sums Estimate Differences Estimate Decimal Sums 1 Estimate Decimal Sums 2 Estimate Decimal Differences 1 Estimate Decimal Differences 2
Number Sense and Numeration	Operational Sense	Explain the need for a standard order for performing operations, by investigating the impact that changing the order has when performing a series of operations.	Teacher directed
Number Sense and Numeration	Proportional Relationships	Represent ratios found in real-life contexts, using concrete materials, drawings, and standard fractional notation.	Teacher directed
Number Sense and Numeration	Proportional Relationships	Determine and explain, through investigation using concrete materials, drawings, and calculators, the relationships among fractions.	Mixed decimal, fraction and percentage conversions Match Decimals and Percentages
Number Sense and Numeration	Proportional Relationships	Represent relationships using unit rates .	Rates
Measurement	Attributes, Units, and Measurement Sense	Demonstrate an understanding of the relationship between estimated and precise measurements, and determine and justify when each kind is appropriate.	Teacher directed
Measurement	Attributes, Units, and Measurement Sense	Estimate, measure, and record length, area, mass, capacity, and volume, using the metric measurement system.	Measuring Length Measure to the Nearest Half Centimetre How Heavy?
Measurement	Measurement Relationships	Select and justify the appropriate metric unit to measure length or distance in a given real-life situation.	Teacher directed
Measurement	Measurement Relationships	Solve problems requiring conversion from larger to smaller metric units.	Millilitres and Litres Grams and Kilograms Centimetres and Metres Converting Units of Length
Measurement	Measurement Relationships	Construct a rectangle, a square, a triangle, and a parallelogram, using a variety of tools given the area and/or perimeter.	Teacher directed

Grade 6

Strand	Substrand	Specific Expectation	Activities
Measurement	Measurement Relationships	Determine, through investigation using a variety of tools and strategies, the relationship between the area of a rectangle and the areas of parallelograms and triangles, by decomposing and composing.	Teacher directed
Measurement	Measurement Relationships	Develop the formulas for the area of a parallelogram and the area of a triangle, using the area relationships among rectangles, parallelograms, and triangles.	Teacher directed
Measurement	Measurement Relationships	Solve problems involving the estimation and calculation of the areas of triangles and the areas of parallelograms.	Area: Triangles Area: Right Triangles Area: Parallelograms (Metric)
Measurement	Measurement Relationships	Determine, using concrete materials, the relationship between units used to measure area, and apply the relationship to solve problems that involve conversions from square metres to square centimetres.	Converting Units of Area
Measurement	Measurement Relationships	Determine, through investigation using a variety of tools and strategies, the relationship between the height, the area of the base, and the volume of a triangular prism, and generalize to develop the formula.	Teacher directed
Measurement	Measurement Relationships	Determine, through investigation using a variety of tools and strategies, the surface area of rectangular and triangular prisms.	Teacher directed
Measurement	Measurement Relationships	Solve problems involving the estimation and calculation of the surface area and volume of triangular and rectangular prisms.	Surface Area: Triangular Prisms Surface Area: Rectangular Prisms Volume: Triangular Prisms Volume: Rectangular Prisms 1
Geometry and Spatial Sense	Geometric Properties	Sort and classify quadrilaterals by geometric properties related to symmetry, angles, and sides, through investigation using a variety of tools and strategies.	Properties of Quadrilaterals
Geometry and Spatial Sense	Geometric Properties	Sort polygons according to the number of lines of symmetry and the order of rotational symmetry, through investigation using a variety of tools.	Symmetry or Not? Rotational Symmetry of Shapes Rotational Symmetry
Geometry and Spatial Sense	Geometric Properties	Measure and construct angles up to 180° using a protractor, and classify them as acute, right, obtuse, or straight angles.	What Type of Angle? Classifying Angles Measuring Angles
Geometry and Spatial Sense	Geometric Properties	Construct polygons using a variety of tools, given angle and side measurements.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Build three-dimensional models using connecting cubes, given isometric sketches or different views of the structure.	Teacher directed

Grade 6

Strand	Substrand	Specific Expectation	Activities
Geometry and Spatial Sense	Geometric Relationships	Sketch, using a variety of tools, isometric perspectives and different views of three-dimensional figures built with interlocking cubes.	Teacher directed
Geometry and Spatial Sense	Location and Movement	Explain how a coordinate system represents location, and plot points in the first quadrant of a Cartesian coordinate plane.	Coordinate Graphs: 1st Quadrant
Geometry and Spatial Sense	Location and Movement	Identify, perform, and describe, through investigation using a variety of tools, rotations of 180° and clockwise and counterclockwise rotations of 90°, with the centre of rotation inside or outside the shape.	Rotations: Coordinate Plane
Geometry and Spatial Sense	Location and Movement	Create and analyse designs made by reflecting, translating, and/or rotating a shape, or shapes, by 90° or 180°.	Transformations Congruent Figures (Dot Grid) Congruent Figures (Grid)
Patterning and Algebra	Patterns and Relationships	Identify geometric patterns, through investigation using concrete materials or drawings, and represent them numerically.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Make tables of values for growing patterns, given pattern rules in words, then list the ordered pairs (with the first coordinate representing the term number and the second coordinate representing the term) and plot the points in the first quadrant, using a variety of tools.	Table of Values Coordinate Graphs: 1st Quadrant
Patterning and Algebra	Patterns and Relationships	Determine the term number of a given term in a growing pattern that is represented by a pattern rule in words, a table of values, or a graph.	Table of Values
Patterning and Algebra	Patterns and Relationships	Describe pattern rules (in words) that generate patterns by adding or subtracting a constant, or multiplying or dividing by a constant, to get the next term, then distinguish such pattern rules from pattern rules, given in words, that describe the general term by referring to the term number.	Describing Patterns
Patterning and Algebra	Patterns and Relationships	Determine a term, given its term number, by extending growing and shrinking patterns that are generated by adding or subtracting a constant, or multiplying or dividing by a constant, to get the next term.	Table of Values
Patterning and Algebra	Patterns and Relationships	Extend and create repeating patterns that result from rotations, through investigation using a variety of tools.	Teacher directed
Patterning and Algebra	Variables, Expressions, and Equations	Demonstrate an understanding of different ways in which variables are used.	Teacher directed

Grade 6

Strand	Substrand	Specific Expectation	Activities
Patterning and Algebra	Variables, Expressions, and Equations	Identify, through investigation, the quantities in an equation that vary and those that remain constant.	Teacher directed
Patterning and Algebra	Variables, Expressions, and Equations	Solve problems that use two or three symbols or letters as variables to represent different unknown quantities.	Magic Symbols 1 Magic Symbols 2
Patterning and Algebra	Variables, Expressions, and Equations	Determine the solution to a simple equation with one variable, through investigation using a variety of tools and strategies.	Write an Equation: Word Problems Missing Numbers: Variables Find the Missing Number 2
Data Management and Probability	Collection and Organization of Data	Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject, and record observations or measurements.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Collect and organize discrete or continuous primary data and secondary data and display the data in charts, tables, and graphs (including continuous line graphs) that have appropriate titles, labels, and scales.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Select an appropriate type of graph to represent a set of data, graph the data using technology, and justify the choice of graph.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Determine, through investigation, how well a set of data represents a population, on the basis of the method that was used to collect the data.	Teacher directed
Data Management and Probability	Data Relationships	Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs.	Histograms Stem and Leaf Plots: Concept Interpreting Tables Line Graphs: Interpretation Tally Charts
Data Management and Probability	Data Relationships	Compare, through investigation, different graphical representations of the same data.	Teacher directed
Data Management and Probability	Data Relationships	Explain how different scales used on graphs can influence conclusions drawn from the data.	Teacher directed
Data Management and Probability	Data Relationships	Demonstrate an understanding of mean, and use the mean to compare two sets of related data, with and without the use of technology.	Mean
Data Management and Probability	Data Relationships	Demonstrate, through investigation, an understanding of how data from charts, tables, and graphs can be used to make inferences and convincing argument.	Teacher directed

Grade 6

Strand	Substrand	Specific Expectation	Activities
Data Management and Probability	Probability	Express theoretical probability as a ratio of the number of favourable outcomes to the total number of possible outcomes, where all outcomes are equally likely.	Introductory Probability Find the Probability Dice and Coins
Data Management and Probability	Probability	Represent the probability of an event, using a value from the range of 0 (never happens or impossible) to 1.	Will it Happen? Chance Gauge What are the Chances? Probability Scale
Data Management and Probability	Probability	Predict the frequency of an outcome of a simple probability experiment or game, by calculating and using the theoretical probability of that outcome.	Teacher directed

Grade 7

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order decimals to hundredths and fractions, using a variety of tools.	Decimals on the Number Line Decimal Order 1 Decimal Place Value Comparing Decimals 1 Identifying Fractions on a Number Line Mixed and Improper Fractions on a Number Line Compare Fractions 1
Number Sense and Numeration	Quantity Relationships	Generate multiples and factors, using a variety of tools and strategies.	Venn Diagram 1 Multiples Factors Find the Factor
Number Sense and Numeration	Quantity Relationships	Identify and compare integers found in real-life contexts.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Represent and order integers, using a variety of tools.	Integers on a Number Line Ordering Integers (Number Line)
Number Sense and Numeration	Quantity Relationships	Select and justify the most appropriate representation of a quantity for a given context.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Represent perfect squares and square roots, using a variety of tools.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Explain the relationship between exponential notation and the measurement of area and volume.	Teacher directed
Number Sense and Numeration	Operational Sense	Divide whole numbers by simple fractions and by decimal numbers to hundredths, using concrete materials.	Teacher directed
Number Sense and Numeration	Operational Sense	Use a variety of mental strategies to solve problems involving the addition and subtraction of fractions and decimals.	Teacher directed
Number Sense and Numeration	Operational Sense	Solve problems involving the multiplication and division of decimal numbers to thousandths by one-digit whole numbers, using a variety of tools and strategies.	Divide Decimal by Whole Number Multiply Decimal by Whole Number
Number Sense and Numeration	Operational Sense	Solve multi-step problems arising from real-life contexts and involving whole numbers and decimals, using a variety of tools and strategies.	Money Problems: Four Operations Best Buy
Number Sense and Numeration	Operational Sense	Use estimation when solving problems involving operations with whole numbers, decimals, and percents, to help judge the reasonableness of a solution.	Estimate Decimal Sums 1 Estimate Decimal Sums 2 Estimate Decimal Differences 1 Estimate Decimal Differences 2 Estimate Decimal Operations
Number Sense and Numeration	Operational Sense	Evaluate expressions that involve whole numbers and decimals, including expressions that contain brackets, using order of operations.	Order of Operations 1 (BEMDAS)

Grade 7

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Operational Sense	Add and subtract fractions with simple like and unlike denominators, using a variety of tools.	Add Like Fractions Add Unlike Fractions Subtract Like Fractions Subtract Unlike Fractions
Number Sense and Numeration	Operational Sense	Demonstrate, using concrete materials, the relationship between the repeated addition of fractions and the multiplication of that fraction by a whole number.	Model Fractions to Multiply
Number Sense and Numeration	Operational Sense	Add and subtract integers, using a variety of tools.	Add Integers Subtract Integers
Number Sense and Numeration	Proportional Relationships	Determine, through investigation, the relationships among fractions, decimals, percents, and ratios.	Mixed decimal, percentage and fraction conversions Match Decimals and Percentages
Number Sense and Numeration	Proportional Relationships	Solve problems that involve determining whole number percents, using a variety of tools.	What Percentage? Ratio and Proportion
Number Sense and Numeration	Proportional Relationships	Demonstrate an understanding of rate as a comparison, or ratio, of two measurements with different units.	Teacher directed
Number Sense and Numeration	Proportional Relationships	Solve problems involving the calculation of unit rates.	Best Buy Average Speed Rate Word Problems
Measurement	Attributes, Units, and Measurement Sense	Research and report on real-life applications of area measurements.	Teacher directed
Measurement	Measurement Relationships	Sketch different polygonal prisms that share the same volume.	Teacher directed
Measurement	Measurement Relationships	Solve problems that require conversion between metric units of measure.	Converting cm and mm Metres and Kilometres Converting Units of Length Converting Units of Mass Mass Addition Capacity Addition
Measurement	Measurement Relationships	Solve problems that require conversion between metric units of area.	Converting Units of Area
Measurement	Measurement Relationships	Determine, through investigation using a variety of tools and strategies, the relationship for calculating the area of a trapezoid, and generalize to develop the formula.	Teacher directed
Measurement	Measurement Relationships	Solve problems involving the estimation and calculation of the area of a trapezoid.	Area: Quadrilaterals
Measurement	Measurement Relationships	Estimate and calculate the area of composite two-dimensional shapes by decomposing into shapes with known area relationships.	Area: Composite Shapes

Grade 7

Strand	Substrand	Specific Expectation	Activities
Measurement	Measurement Relationships	Determine, through investigation using a variety of tools and strategies, the relationship between the height, the area of the base, and the volume of right prisms with simple polygonal bases, and generalize to develop the formula.	Teacher directed
Measurement	Measurement Relationships	Determine, through investigation using a variety of tools, the surface area of right prisms.	Nets Surface Area: Rectangular Prisms Surface Area: Triangular Prisms
Measurement	Measurement Relationships	Solve problems that involve the surface area and volume of right prisms and that require conversion between metric measures of capacity and volume.	Converting Volume Capacity Word Problems
Geometry and Spatial Sense	Geometric Properties	Construct related lines, using angle properties and a variety of tools and strategies.	Teacher directed
Geometry and Spatial Sense	Geometric Properties	Sort and classify triangles and quadrilaterals by geometric properties related to symmetry, angles, and sides, through investigation using a variety of tools and strategies.	Triangle Tasters Properties of Quadrilaterals
Geometry and Spatial Sense	Geometric Properties	Construct angle bisectors and perpendicular bisectors, using a variety of tools and strategies, and represent equal angles and equal lengths using mathematical notation.	Teacher directed
Geometry and Spatial Sense	Geometric Properties	Investigate, using concrete materials, the angles between the faces of a prism, and identify right prisms.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Identify, through investigation, the minimum side and angle information needed to describe a unique triangle.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Determine, through investigation using a variety of tools, relationships among area, perimeter, corresponding side lengths, and corresponding angles of congruent shapes.	Perimeter, Area, Dimension Change
Geometry and Spatial Sense	Geometric Relationships	Demonstrate an understanding that enlarging or reducing two-dimensional shapes creates similar shapes.	Similar Figures 1
Geometry and Spatial Sense	Geometric Relationships	Distinguish between and compare similar shapes and congruent shapes, using a variety of tools and strategies.	Similar Figures 1 Transformations Congruent Figures (Grid)
Geometry and Spatial Sense	Location and Movement	Plot points using all four quadrants of the Cartesian coordinate plane.	Coordinate Graphs
Geometry and Spatial Sense	Location and Movement	Identify, perform, and describe dilatations, through investigation using a variety of tools.	Scale Factor

Grade 7

Strand	Substrand	Specific Expectation	Activities
Geometry and Spatial Sense	Location and Movement	Create and analyse designs involving translations, reflections, dilatations, and/or simple rotations of two-dimensional shapes, using a variety of tools and strategies.	Teacher directed
Geometry and Spatial Sense	Location and Movement	Determine, through investigation using a variety of tools, polygons or combinations of polygons that tile a plane, and describe the transformation(s) involved.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Represent linear growing patterns, using a variety of tools and strategies.	Table of Values Graphing from a Table of Values
Patterning and Algebra	Patterns and Relationships	Make predictions about linear growing patterns, through investigation with concrete materials.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Develop and represent the general term of a linear growing pattern, using algebraic expressions involving one operation.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Compare pattern rules that generate a pattern by adding or subtracting a constant, or multiplying or dividing by a constant, to get the next term with pattern rules that use the term number to describe the general term.	Teacher directed
Patterning and Algebra	Variables, Expressions, and Equations	Model real-life relationships involving constant rates where the initial condition starts at 0, through investigation using tables of values and graphs.	y=ax
Patterning and Algebra	Variables, Expressions, and Equations	Model real-life relationships involving constant rates, using algebraic equations with variables to represent the changing quantities in the relationship.	Teacher directed
Patterning and Algebra	Variables, Expressions, and Equations	Translate phrases describing simple mathematical relationships into algebraic expressions, using concrete materials.	Writing Algebraic Expressions
Patterning and Algebra	Variables, Expressions, and Equations	Evaluate algebraic expressions by substituting natural numbers for the variables.	Simple Substitution 1
Patterning and Algebra	Variables, Expressions, and Equations	Make connections between evaluating algebraic expressions and determining the term in a pattern using the general term.	Teacher directed
Patterning and Algebra	Variables, Expressions, and Equations	Solve linear equations of the form $ax = c$ or $c = ax$ and $ax + b = c$ or variations such as $b + ax = c$ and $c = bx + a$ (where a, b, and c are natural numbers) by modelling with concrete materials, by inspection, or by guess and check, with and without the aid of a calculator.	Write an Equation: Word Problems

Grade 7

Strand	Substrand	Specific Expectation	Activities
Data Management and Probability	Collection and Organization of Data	Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject and record observations or measurements.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Collect and organize categorical, discrete, or continuous primary data and secondary data and display the data in charts, tables, and graphs (including relative frequency tables and circle graphs) that have appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools.	Grouped Frequency
Data Management and Probability	Collection and Organization of Data	Select an appropriate type of graph to represent a set of data, graph the data using technology, and justify the choice of graph.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Distinguish between a census and a sample from a population.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Identify bias in data collection methods.	Teacher directed
Data Management and Probability	Data Relationships	Read, interpret, and draw conclusions from primary data and from secondary data presented in charts, tables, and graphs.	Tally Charts Interpreting Tables Frequency Histograms Line Graphs: Interpretation Divided Bar Graphs Sector Graphs
Data Management and Probability	Data Relationships	Identify, through investigation, graphs that present data in misleading ways.	Teacher directed
Data Management and Probability	Data Relationships	Determine, through investigation, the effect on a measure of central tendency of adding or removing a value or values.	Teacher directed
Data Management and Probability	Data Relationships	Identify and describe trends, based on the distribution of the data presented in tables and graphs, using informal language.	Mean from Frequency Table Median from Frequency Table Mode from Frequency Table
Data Management and Probability	Data Relationships	Make inferences and convincing arguments that are based on the analysis of charts, tables, and graphs.	Teacher directed
Data Management and Probability	Probability	Research and report on real-world applications of probabilities expressed in fraction, decimal, and percent form.	Teacher directed
Data Management and Probability	Probability	Make predictions about a population when given a probability.	Teacher directed

Grade 7

Strand	Substrand	Specific Expectation	Activities
Data Management and Probability	Probability	Represent in a variety of ways all the possible outcomes of a probability experiment involving two independent events, and determine the theoretical probability of a specific outcome involving two independent events.	Dice and Coins
Data Management and Probability	Probability	Perform a simple probability experiment involving two independent events, and compare the experimental probability with the theoretical probability of a specific outcome.	Teacher directed

Grade 8

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Quantity Relationships	Express repeated multiplication using exponential notation.	Exponent Notation
Number Sense and Numeration	Quantity Relationships	Represent whole numbers in expanded form using powers of ten.	Teacher directed
Number Sense and Numeration	Quantity Relationships	Represent, compare, and order rational numbers.	Ordering Integers (Number Line) Comparing Fractions with Signs
Number Sense and Numeration	Quantity Relationships	Translate between equivalent forms of a number.	Decimals to Fractions 1 Decimals to Fractions 2 Fractions to Decimals Fractions to Decimals 2 Percents and Decimals Percents to Fractions
Number Sense and Numeration	Quantity Relationships	Determine common factors and common multiples using the prime factorization of numbers.	Prime Factoring Greatest Common Factor Least Common Multiple
Number Sense and Numeration	Operational Sense	Solve multi-step problems arising from real-life contexts and involving whole numbers and decimals, using a variety of tools and strategies.	Money Problems: Four Operations Best Buy
Number Sense and Numeration	Operational Sense	Solve problems involving percents expressed to one decimal place and whole-number percents greater than 100.	Percentage Word Problems Percentage of an amount using fractions (< 100%) Successive Discounts Percentages of a quantity (no units) Commission Percentage Change: Increase and Decrease Percent Increase and Decrease Solve Percent Equations
Number Sense and Numeration	Operational Sense	Use estimation when solving problems involving operations with whole numbers, decimals, percents, integers, and fractions, to help judge the reasonableness of a solution.	Estimate Decimal Operations Estimate Decimal Sums 2 Estimate Decimal Differences 2 Estimate Sums Estimate Differences Estimate Products Estimate Quotients
Number Sense and Numeration	Operational Sense	Represent the multiplication and division of fractions, using a variety of tools and strategies.	Multiply Fraction by Fraction Divide Fractions Visual Model
Number Sense and Numeration	Operational Sense	Solve problems involving addition, subtraction, multiplication, and division with simple fractions.	Add Like Fractions Add Unlike Fractions Subtract Like Fractions Subtract Unlike Fractions Multiply Two Fractions 1 Divide Fractions by Fractions 1
Number Sense and Numeration	Operational Sense	Represent the multiplication and division of integers, using a variety of tools.	Teacher directed

Grade 8

Strand	Substrand	Specific Expectation	Activities
Number Sense and Numeration	Operational Sense	Solve problems involving operations with integers, using a variety of tools.	Integers: Add and Subtract
Number Sense and Numeration	Operational Sense	Evaluate expressions that involve integers, including expressions that contain brackets and exponents, using order of operations.	Integers: Order of Operations (BEDMAS)
Number Sense and Numeration	Operational Sense	Multiply and divide decimal numbers by various powers of ten.	Multiply Decimals and Powers of 10 Divide Decimals by Powers of 10 100 1000
Number Sense and Numeration	Operational Sense	Estimate, and verify using a calculator, the positive square roots of whole numbers, and distinguish between whole numbers that have whole-number square roots and those that do not.	Square Roots 1 Estimate Square Roots
Number Sense and Numeration	Proportional Relationships	Identify and describe real-life situations involving two quantities that are directly proportional.	Teacher directed
Number Sense and Numeration	Proportional Relationships	Solve problems involving proportions, using concrete materials, drawings, and variables.	Ratio Word Problems
Number Sense and Numeration	Proportional Relationships	Solve problems involving percent that arise from real-life contexts.	Percentage Word Problems Commission Successive Discounts
Number Sense and Numeration	Proportional Relationships	Solve problems involving rates.	Best Buy Rates Word Problems Average Speed Rates
Measurement	Attributes, Units, and Measurement Sense	Research, describe, and report on applications of volume and capacity measurement.	Teacher directed
Measurement	Measurement Relationships	Solve problems that require conversions involving metric units of area, volume, and capacity.	Converting Units of Area Converting Volume Capacity Word Problems Capacity Addition
Measurement	Measurement Relationships	Measure the circumference, radius, and diameter of circular objects, using concrete materials.	Teacher directed
Measurement	Measurement Relationships	Determine, through investigation using a variety of tools and strategies, the relationships for calculating the circumference and the area of a circle, and generalize to develop the formulas.	Teacher directed
Measurement	Measurement Relationships	Solve problems involving the estimation and calculation of the circumference and the area of a circle.	Circumference: Circles Area: Circles 1
Measurement	Measurement Relationships	Determine, through investigation using a variety of tools and strategies, the relationship between the area of the base and height and the volume of a cylinder, and generalize to develop the formula.	Teacher directed

Grade 8

Strand	Substrand	Specific Expectation	Activities
Measurement	Measurement Relationships	Determine, through investigation using concrete materials, the surface area of a cylinder.	Teacher directed
Measurement	Measurement Relationships	Solve problems involving the surface area and the volume of cylinders, using a variety of strategies.	Surface Area: Cylinders Volume: Cylinders
Geometry and Spatial Sense	Geometric Properties	Sort and classify quadrilaterals by geometric properties, including those based on diagonals, through investigation using a variety of tools.	Properties of Quadrilaterals
Geometry and Spatial Sense	Geometric Properties	Construct a circle, given its centre and radius, or its centre and a point on the circle, or three points on the circle.	Teacher directed
Geometry and Spatial Sense	Geometric Properties	Investigate and describe applications of geometric properties in the real world.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Determine, through investigation using a variety of tools, relationships among area, perimeter, corresponding side lengths, and corresponding angles of similar shapes.	Perimeter, Area, Dimension Change Similar Figures
Geometry and Spatial Sense	Geometric Relationships	Determine, through investigation using a variety of tools and strategies, the angle relationships for intersecting lines and for parallel lines and transversals, and the sum of the angles of a triangle.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Solve angle-relationship problems involving triangles, intersecting lines, and parallel lines and transversals.	Angle Measures in a Triangle Angle Sum of a Triangle Exterior Angles of a Triangle Vertically Opposite: Value of x Equal, Complementary or Supplementary Angles? Introduction to Angles on Parallel Lines 1 Introduction to Angles on Parallel Lines 3 Parallel Lines Angles and Parallel Lines
Geometry and Spatial Sense	Geometric Relationships	Determine the Pythagorean relationship, through investigation using a variety of tools and strategies.	Teacher directed
Geometry and Spatial Sense	Geometric Relationships	Solve problems involving right triangles geometrically, using the Pythagorean relationship.	Pythagorean Triads Pythagorean Theorem Pythagoras' Theorem Pythagoras: Find a Short Side (integers only) Pythagoras: Find a Short Side (decimal values) Pythagoras: Find a Short Side (rounding needed)
Geometry and Spatial Sense	Geometric Relationships	Determine, through investigation using concrete materials, the relationship between the numbers of faces, edges, and vertices of a polyhedron.	Euler's Formulas

Grade 8

Strand	Substrand	Specific Expectation	Activities
Geometry and Spatial Sense	Location and Movement	Graph the image of a point, or set of points, on the Cartesian coordinate plane after applying a transformation to the original point(s).	Transformations: Coordinate Plane
Geometry and Spatial Sense	Location and Movement	Identify, through investigation, real-world movements that are translations, reflections, and rotations.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Represent, through investigation with concrete materials, the general term of a linear pattern, using one or more algebraic expressions.	Teacher directed
Patterning and Algebra	Patterns and Relationships	Represent linear patterns graphically, using a variety of tools.	Graphing from a Table of Values
Patterning and Algebra	Patterns and Relationships	Determine a term, given its term number, in a linear pattern that is represented by a graph or an algebraic equation.	Reading Values from a Line
Patterning and Algebra	Variables, Expressions, and Equations	Describe different ways in which algebra can be used in real-life situations.	Teacher directed
Patterning and Algebra	Variables, Expressions, and Equations	Model linear relationships using tables of values, graphs, and equations, through investigation using a variety of tools.	Pattern Rules and Tables Graphing from a Table of Values y=ax
Patterning and Algebra	Variables, Expressions, and Equations	Translate statements describing mathematical relationships into algebraic expressions and equations.	Writing Algebraic Expressions Writing Equations
Patterning and Algebra	Variables, Expressions, and Equations	Evaluate algebraic expressions with up to three terms, by substituting fractions, decimals, and integers for the variables.	Simple Substitution 3
Patterning and Algebra	Variables, Expressions, and Equations	Make connections between solving equations and determining the term number in a pattern, using the general term.	Find the Pattern Rule
Patterning and Algebra	Variables, Expressions, and Equations	Solve and verify linear equations involving a one-variable term and having solutions that are integers, by using inspection, guess and check, and a "balance" model.	Solve Equations: Multiply, Divide 1 Solve Equations: Multiply, Divide 2 Equations to Solve Problems Solve Multi-Step Equations Solve Two-Step Equations Equations with Grouping Symbols Solving More Equations Checking Solutions
Data Management and Probability	Collection and Organization of Data	Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject, and record observations or measurements.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Organize into intervals a set of data that is spread over a broad range.	Teacher directed

Grade 8

Strand	Substrand	Specific Expectation	Activities
Data Management and Probability	Collection and Organization of Data	Collect and organize categorical, discrete, or continuous primary data and secondary data, and display the data in charts, tables, and graphs (including histograms and scatter plots) that have appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Select an appropriate type of graph to represent a set of data, graph the data using technology, and justify the choice of graph.	Teacher directed
Data Management and Probability	Collection and Organization of Data	Explain the relationship between a census, a representative sample, sample size, and a population.	Teacher directed
Data Management and Probability	Data Relationships	Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs.	Histograms Scatter Plots Line Graphs: Interpretation Travel Graphs
Data Management and Probability	Data Relationships	Determine, through investigation, the appropriate measure of central tendency needed to compare sets of data.	Which Measure of Central Tendency?
Data Management and Probability	Data Relationships	Demonstrate an understanding of the appropriate uses of bar graphs and histograms by comparing their characteristics.	Teacher directed
Data Management and Probability	Data Relationships	Compare two attributes or characteristics, using a scatter plot, and determine whether or not the scatter plot suggests a relationship.	Scatter Plots Data Analysis: Scatter Plots
Data Management and Probability	Data Relationships	Identify and describe trends, based on the rate of change of data from tables and graphs, using informal language.	Line Graphs: Interpretation
Data Management and Probability	Data Relationships	Make inferences and convincing arguments that are based on the analysis of charts, tables, and graphs.	Teacher directed
Data Management and Probability	Data Relationships	Compare two attributes or characteristics, using a variety of data management tools and strategies.	Teacher directed
Data Management and Probability	Probability	Compare, through investigation, the theoretical probability of an event with experimental probability, and explain why they might differ.	Teacher directed
Data Management and Probability	Probability	Determine, through investigation, the tendency of experimental probability to approach theoretical probability as the number of trials in an experiment increases, using class-generated data and technology-based simulation models.	Teacher directed
Data Management and Probability	Probability	Identify the complementary event for a given event, and calculate the theoretical probability that a given event will not occur.	Complementary Events

Grade 9, Academic (MPM1D)

Strand	Substrand	Expectation	Activities
Number Sense and Algebra	Operating with Exponents	Substitute into and evaluate algebraic expressions involving exponents.	Exponent Form to Numbers The Zero Exponent Zero Exponent and Algebra Negative Exponents Integer Exponents Complex Substitution
Number Sense and Algebra	Operating with Exponents	Describe the relationship between the algebraic and geometric representations of a single-variable term up to degree three.	Teacher directed
Number Sense and Algebra	Operating with Exponents	Derive, through the investigation and examination of patterns, the exponent rules for multiplying and dividing monomials, and apply these rules in expressions involving one and two variables with positive exponents.	Properties of Exponents Simplifying with Exponent Laws 1 Exponent Laws and Algebra Multiplication with Exponents Factoring with Exponents
Number Sense and Algebra	Operating with Exponents	Extend the multiplication rule to derive and understand the power of a power rule, and apply it to simplify expressions involving one and two variables with positive exponents.	Properties of Exponents Exponent Laws with Brackets
Number Sense and Algebra	Manipulating Expressions and Solving Equations	Simplify numerical expressions involving integers and rational numbers, with and without the use of technology.	Order of Operations (BEMDAS) Identifying errors in applying the order of operations Integers: Order of Operations (BEMDAS)
Number Sense and Algebra	Manipulating Expressions and Solving Equations	Solve problems requiring the manipulation of expressions arising from applications of percent, ratio, rate, and proportion.	Percent Increase and Decrease Percentage Change: Increase and Decrease Percentage Word Problems Rates Rates Calculations Equivalent Ratios Ratio Word Problems Proportional Relationships
Number Sense and Algebra	Manipulating Expressions and Solving Equations	Relate their understanding of inverse operations to squaring and taking the square root, and apply inverse operations to simplify expressions and solve equations.	Square Roots
Number Sense and Algebra	Manipulating Expressions and Solving Equations	Add and subtract polynomials with up to two variables, using a variety of tools.	Like Terms: Add and Subtract
Number Sense and Algebra	Manipulating Expressions and Solving Equations	Multiply a polynomial by a monomial involving the same variable, using a variety of tools.	Teacher directed
Number Sense and Algebra	Manipulating Expressions and Solving Equations	Expand and simplify polynomial expressions involving one variable, using a variety of tools.	Expand then Simplify

Grade 9, Academic (MPM1D)

Strand	Substrand	Expectation	Activities
Number Sense and Algebra	Manipulating Expressions and Solving Equations	Solve first-degree equations, including equations with fractional coefficients, using a variety of tools and strategies.	Solve Equations: Add, Subtract 1 Solve Equations: Add, Subtract 2 Solve Equations: Multiply, Divide 1 Solve Equations: Multiply, Divide 2 Solving Simple Equations Solve Two-Step Equations Solving More Equations Solve Multi-Step Equations Equations with Grouping Symbols Equations with Decimals Equations with Fractions
Number Sense and Algebra	Manipulating Expressions and Solving Equations	Rearrange formulas involving variables in the first degree, with and without substitution.	Changing the Subject
Number Sense and Algebra	Manipulating Expressions and Solving Equations	Solve problems that can be modelled with first-degree equations, and compare algebraic methods to other solution methods.	Writing Equations Write an Equation: Word Problems
Linear Relations	Using Data Management to Investigate Relationships	Interpret the meanings of points on scatter plots or graphs that represent linear relations, including scatter plots or graphs in more than one quadrant.	Conversion Graphs Gradients for Real
Linear Relations	Using Data Management to Investigate Relationships	Pose problems, identify variables, and formulate hypotheses associated with relationships between two variables.	Teacher directed
Linear Relations	Using Data Management to Investigate Relationships	Design and carry out an investigation or experiment involving relationships between two variables, including the collection and organization of data, using appropriate methods, equipment, and/or technology and techniques.	Teacher directed
Linear Relations	Using Data Management to Investigate Relationships	Describe trends and relationships observed in data, make inferences from data, compare the inferences with hypotheses about the data, and explain any differences between the inferences and the hypotheses.	Teacher directed
Linear Relations	Understanding Characteristics of Linear Relations	Construct tables of values, graphs, and equations, using a variety of tools, to represent linear relations derived from descriptions of realistic situations.	Modelling Linear Relationships y=ax
Linear Relations	Understanding Characteristics of Linear Relations	Construct tables of values, scatter plots, and lines or curves of best fit as appropriate, using a variety of tools, for linearly related and non-linearly related data collected from a variety of sources.	Data Analysis: Scatter Plots
Linear Relations	Understanding Characteristics of Linear Relations	Identify, through investigation, some properties of linear relations and apply these properties to determine whether a relation is linear or non-linear.	Teacher directed

Grade 9, Academic (MPM1D)

Strand	Substrand	Expectation	Activities
Linear Relations	Understanding Characteristics of Linear Relations	Compare the properties of direct variation and partial variation in applications, and identify the initial value.	Modelling Linear Relationships
Linear Relations	Understanding Characteristics of Linear Relations	Determine the equation of a line of best fit for a scatter plot, using an informal process.	Teacher directed
Linear Relations	Connecting Various Representations of Linear Relations	Determine values of a linear relation by using a table of values, by using the equation of the relation, and by interpolating or extrapolating from the graph of the relation.	Reading Values from a Line Function Rules and Tables
Linear Relations	Connecting Various Representations of Linear Relations	Describe a situation that would explain the events illustrated by a given graph of a relationship between two variables.	Teacher directed
Linear Relations	Connecting Various Representations of Linear Relations	Determine other representations of a linear relation, given one representation.	Function Rules and Tables Find the Function Rule Graphing from a Table of Values 2 Which Straight Line? Equation of a Line 1 Determining a Rule for a Line Modelling Linear Relationships
Linear Relations	Connecting Various Representations of Linear Relations	Describe the effects on a linear graph and make the corresponding changes to the linear equation when the conditions of the situation they represent are varied.	Gradients for Real
Analytic Geometry	Investigating the Relationship Between the Equation of a Relation and the Shape of Its Graph	Determine, through investigation, the characteristics that distinguish the equation of a straight line from the equations of nonlinear relations.	Teacher directed
Analytic Geometry	Investigating the Relationship Between the Equation of a Relation and the Shape of Its Graph	Identify, through investigation, the equation of a line in any of the forms $y = mx + b$, $Ax + By + C = 0$, $x = a$, $y = b$.	Equation of a Line 1 Horizontal and Vertical Lines
Analytic Geometry	Investigating the Relationship Between the Equation of a Relation and the Shape of Its Graph	Express the equation of a line in the form $y = mx + b$, given the form $Ax + By + C = 0$.	General Form of a Line

Grade 9, Academic (MPM1D)

Strand	Substrand	Expectation	Activities
Analytic Geometry	Investigating the Properties of Slope	Determine, through investigation, various formulas for the slope of a line segment or a line, and use the formulas to determine the slope of a line segment or a line.	Slope of a Line Gradient
Analytic Geometry	Investigating the Properties of Slope	Identify, through investigation with technology, the geometric significance of m and b in the equation $y = mx + b$.	Teacher directed
Analytic Geometry	Investigating the Properties of Slope	Determine, through investigation, connections among the representations of a constant rate of change of a linear relation.	Gradients for Real Modelling Linear Relations
Analytic Geometry	Investigating the Properties of Slope	Identify, through investigation, properties of the slopes of lines and line segments, using graphing technology to facilitate investigations, where appropriate.	Perpendicular and Parallel Lines Are they Parallel? Are they Perpendicular? Equation of a Line 3 Horizontal and Vertical Lines
Analytic Geometry	Using the Properties of Linear Relations to Solve Problems	Graph lines by hand, using a variety of techniques.	Graphing from a Table of Values 2
Analytic Geometry	Using the Properties of Linear Relations to Solve Problems	Determine the equation of a line from information about the line.	Equation from Point and Gradient Equation from Two Points Are they Parallel? Are they Perpendicular? Perpendicular and Parallel Lines Equation of a Line 3 Determining a Rule for a Line Which Straight Line?
Analytic Geometry	Using the Properties of Linear Relations to Solve Problems	Describe the meaning of the slope and y-intercept for a linear relation arising from a realistic situation, and describe a situation that could be modelled by a given linear equation.	Teacher directed
Analytic Geometry	Using the Properties of Linear Relations to Solve Problems	Identify and explain any restrictions on the variables in a linear relation arising from a realistic situation.	Teacher directed
Analytic Geometry	Using the Properties of Linear Relations to Solve Problems	Determine graphically the point of intersection of two linear relations, and interpret the intersection point in the context of an application.	Solve Systems by Graphing Simultaneous Linear Equations Breakeven Point Linear Modelling
Measurement and Geometry	Investigating the Optimal Values of Measurements	Determine the maximum area of a rectangle with a given perimeter by constructing a variety of rectangles, using a variety of tools, and by examining various values of the area as the side lengths change and the perimeter remains constant.	Teacher directed

Grade 9, Academic (MPM1D)

Strand	Substrand	Expectation	Activities
Measurement and Geometry	Investigating the Optimal Values of Measurements	Determine the minimum perimeter of a rectangle with a given area by constructing a variety of rectangles, using a variety of tools, and by examining various values of the side lengths and the perimeter as the area stays constant.	Teacher directed
Measurement and Geometry	Investigating the Optimal Values of Measurements	Identify, through investigation with a variety of tools, the effect of varying the dimensions on the surface area (or volume) of square-based prisms and cylinders, given a fixed volume (or surface area).	Teacher directed
Measurement and Geometry	Investigating the Optimal Values of Measurements	Explain the significance of optimal area, surface area, or volume in various applications.	Teacher directed
Measurement and Geometry	Investigating the Optimal Values of Measurements	Pose and solve problems involving maximization and minimization of measurements of geometric shapes and figures.	Teacher directed
Measurement and Geometry	Solving Problems Involving Perimeter, Area, Surface Area, and Volume	Relate the geometric representation of the Pythagorean theorem and the algebraic representation $a^2 + b^2 = c^2$.	Pythagorean Triads
Measurement and Geometry	Solving Problems Involving Perimeter, Area, Surface Area, and Volume	Solve problems using the Pythagorean theorem, as required in applications.	Pythagorean Theorem Pythagoras: Find a Short Side (integers only) Pythagoras: Find a Short Side (decimal values) Pythagoras: Find a Short Side (rounding needed) Pythagoras and Perimeter Find Slant Height
Measurement and Geometry	Solving Problems Involving Perimeter, Area, Surface Area, and Volume	Solve problems involving the areas and perimeters of composite two-dimensional shapes.	Area: Composite Shapes Area: Compound Figures Perimeter: Composite Shapes
Measurement and Geometry	Solving Problems Involving Perimeter, Area, Surface Area, and Volume	Develop, through investigation, the formulas for the volume of a pyramid, a cone, and a sphere.	Teacher directed
Measurement and Geometry	Solving Problems Involving Perimeter, Area, Surface Area, and Volume	Determine, through investigation, the relationship for calculating the surface area of a pyramid.	Teacher directed

Grade 9, Academic (MPM1D)

Strand	Substrand	Expectation	Activities
Measurement and Geometry	Solving Problems Involving Perimeter, Area, Surface Area, and Volume	Solve problems involving the surface areas and volumes of prisms, pyramids, cylinders, cones, and spheres, including composite figures.	Surface Area: Rectangular Prisms Surface Area: Triangular Prisms Surface Area: Square Pyramids Surface Area: Cylinders Surface Area: Cones Surface Area: Spheres Volume: Prisms Volume: Pyramids Volume: Cylinders Volume: Cones Volume: Spheres Volume: Composite Figures
Measurement and Geometry	Investigating and Applying Geometric Relationships	Determine, through investigation using a variety of tools, and describe the properties and relationships of the interior and exterior angles of triangles, quadrilaterals, and other polygons, and apply the results to problems involving the angles of polygons.	Angle Measures in a Triangle Exterior Angles of a Triangle Quadrilaterals: Angle Sum with Equations Interior Angles
Measurement and Geometry	Investigating and Applying Geometric Relationships	Determine, through investigation using a variety of tools, and describe some properties of polygons, and apply the results in problem solving.	Properties of Quadrilaterals Plane Figure Theorems Ratio of Intercepts
Measurement and Geometry	Investigating and Applying Geometric Relationships	Pose questions about geometric relationships, investigate them, and present their findings, using a variety of mathematical forms.	Teacher directed
Measurement and Geometry	Investigating and Applying Geometric Relationships	Illustrate a statement about a geometric property by demonstrating the statement with multiple examples, or deny the statement on the basis of a counter-example, with or without the use of dynamic geometry software.	Properties of Quadrilaterals Plane Figure Theorems

Grade 9, Applied (MFM1P)

Strand	Substrand	Expectation	Activities
Number Sense and Algebra	Solving Problems Involving Proportional Reasoning	Illustrate equivalent ratios, using a variety of tools.	Equivalent Ratios Ratios
Number Sense and Algebra	Solving Problems Involving Proportional Reasoning	Represent, using equivalent ratios and proportions, directly proportional relationships arising from realistic situations.	Ratio Word Problems Rates
Number Sense and Algebra	Solving Problems Involving Proportional Reasoning	Solve for the unknown value in a proportion, using a variety of methods.	Solve Proportions
Number Sense and Algebra	Solving Problems Involving Proportional Reasoning	Make comparisons using unit rates.	Teacher directed
Number Sense and Algebra	Solving Problems Involving Proportional Reasoning	Solve problems involving ratios, rates, and directly proportional relationships in various contexts, using a variety of methods.	Ratio Word Problems Rate Word Problems Proportional Relationships
Number Sense and Algebra	Solving Problems Involving Proportional Reasoning	Solve problems requiring the expression of percents, fractions, and decimals in their equivalent forms.	Mixed decimal, percentage and fraction conversions Ratio and Proportion What Percentage? Percentage of a Quantity Percentage Word Problems Simple Interest
Number Sense and Algebra	Simplifying Expressions and Solving Equations	Simplify numerical expressions involving integers and rational numbers, with and without the use of technology.	Order of Operations 1 (BEMDAS) Identifying errors in applying the order of operations Integers: Order of Operations (BEMDAS)
Number Sense and Algebra	Simplifying Expressions and Solving Equations	Relate their understanding of inverse operations to squaring and taking the square root, and apply inverse operations to simplify expressions and solve equations.	Square Roots
Number Sense and Algebra	Simplifying Expressions and Solving Equations	Describe the relationship between the algebraic and geometric representations of a single-variable term up to degree three.	Teacher directed
Number Sense and Algebra	Simplifying Expressions and Solving Equations	Substitute into and evaluate algebraic expressions involving exponents.	Exponent Form to Numbers The Zero Exponent Zero Exponent and Algebra Negative Exponents Integer Exponents Complex Substitution
Number Sense and Algebra	Simplifying Expressions and Solving Equations	Add and subtract polynomials involving the same variable up to degree three, using a variety of tools.	Like Terms: Add and Subtract
Number Sense and Algebra	Simplifying Expressions and Solving Equations	Multiply a polynomial by a monomial involving the same variable to give results up to degree three, using a variety of tools.	Teacher directed

Grade 9, Applied (MFM1P)

Strand	Substrand	Expectation	Activities
Number Sense and Algebra	Simplifying Expressions and Solving Equations	Solve first-degree equations with nonfractional coefficients, using a variety of tools and strategies.	Solve Equations: Multiply, Divide 1 Solve Equations: Multiply, Divide 2 Solving Simple Equations Solve Two-Step Equations Solving More Equations Solve Multi-Step Equations Equations with Grouping Symbols
Number Sense and Algebra	Simplifying Expressions and Solving Equations	Substitute into algebraic equations and solve for one variable in the first degree.	Teacher directed
Linear Relations	Using Data Management to Investigate Relationships	Interpret the meanings of points on scatter plots or graphs that represent linear relations, including scatter plots or graphs in more than one quadrant.	Conversion Graphs Gradients for Real
Linear Relations	Using Data Management to Investigate Relationships	Pose problems, identify variables, and formulate hypotheses associated with relationships between two variables.	Teacher directed
Linear Relations	Using Data Management to Investigate Relationships	Carry out an investigation or experiment involving relationships between two variables, including the collection and organization of data, using appropriate methods, equipment, and/or technology and techniques.	Teacher directed
Linear Relations	Using Data Management to Investigate Relationships	Describe trends and relationships observed in data, make inferences from data, compare the inferences with hypotheses about the data, and explain any differences between the inferences and the hypotheses.	Teacher directed
Linear Relations	Determining Characteristics of Linear Relations	Construct tables of values and graphs, using a variety of tools, to represent linear relations derived from descriptions of realistic situations.	Modelling Linear Relationships y=ax
Linear Relations	Determining Characteristics of Linear Relations	Construct tables of values, scatter plots, and lines or curves of best fit as appropriate, using a variety of tools, for linearly related and non-linearly related data collected from a variety of sources.	Data Analysis: Scatter Plots
Linear Relations	Determining Characteristics of Linear Relations	Identify, through investigation, some properties of linear relations, and apply these properties to determine whether a relation is linear or non-linear.	Teacher directed
Linear Relations	Investigating Constant Rate of Change	Determine, through investigation, that the rate of change of a linear relation can be found by choosing any two points on the line that represents the relation, finding the vertical change between the points and the horizontal change between the points, and writing the ratio $\frac{rise}{run}$.	Slope of a Line Gradient

Grade 9, Applied (MFM1P)

Strand	Substrand	Expectation	Activities
Linear Relations	Investigating Constant Rate of Change	Determine, through investigation, connections among the representations of a constant rate of change of a linear relation.	Gradients for Real Modelling Linear Relationships
Linear Relations	Investigating Constant Rate of Change	Compare the properties of direct variation and partial variation in applications, and identify the initial value.	Modelling Linear Relationships
Linear Relations	Investigating Constant Rate of Change	Express a linear relation as an equation in two variables, using the rate of change and the initial value.	Equation of a Line 1
Linear Relations	Investigating Constant Rate of Change	Describe the meaning of the rate of change and the initial value for a linear relation arising from a realistic situation, and describe a situation that could be modelled by a given linear equation.	Gradients for Real
Linear Relations	Connecting Various Representations of Linear Relations and Solving Problems Using the Representations	Determine values of a linear relation by using a table of values, by using the equation of the relation, and by interpolating or extrapolating from the graph of the relation.	Reading Values from a Line Function Rules and Tables
Linear Relations	Connecting Various Representations of Linear Relations and Solving Problems Using the Representations	Describe a situation that would explain the events illustrated by a given graph of a relationship between two variables.	Teacher directed
Linear Relations	Connecting Various Representations of Linear Relations and Solving Problems Using the Representations	Determine other representations of a linear relation arising from a realistic situation, given one representation.	Function Rules and Tables Find the Function Rule Graphing from a Table of Values 2 Which Straight Line? Equation of a Line 1 Determining a Rule for a Line Modelling Linear Relationships
Linear Relations	Connecting Various Representations of Linear Relations and Solving Problems Using the Representations	Solve problems that can be modelled with first-degree equations, and compare the algebraic method to other solution methods.	Writing Equations Write an Equation: Word Problems

Grade 9, Applied (MFM1P)

Strand	Substrand	Expectation	Activities
Linear Relations	Connecting Various Representations of Linear Relations and Solving Problems Using the Representations	Describe the effects on a linear graph and make the corresponding changes to the linear equation when the conditions of the situation they represent are varied.	Gradients for Real
Linear Relations	Connecting Various Representations of Linear Relations and Solving Problems Using the Representations	Determine graphically the point of intersection of two linear relations, and interpret the intersection point in the context of an application.	Solve Systems by Graphing Simultaneous Linear Equations Breakeven Point Linear Modelling
Linear Relations	Connecting Various Representations of Linear Relations and Solving Problems Using the Representations	Select a topic involving a two-variable relationship, pose a question on the topic, collect data to answer the question, and present its solution using appropriate representations of the data.	Teacher directed
Measurement and Geometry	Investigating the Optimal Values of Measurements of Rectangles	Determine the maximum area of a rectangle with a given perimeter by constructing a variety of rectangles, using a variety of tools, and by examining various values of the area as the side lengths change and the perimeter remains constant.	Teacher directed
Measurement and Geometry	Investigating the Optimal Values of Measurements of Rectangles	Determine the minimum perimeter of a rectangle with a given area by constructing a variety of rectangles, using a variety of tools, and by examining various values of the side lengths and the perimeter as the area stays constant.	Teacher directed
Measurement and Geometry	Investigating the Optimal Values of Measurements of Rectangles	Solve problems that require maximizing the area of a rectangle for a fixed perimeter or minimizing the perimeter of a rectangle for a fixed area.	Teacher directed
Measurement and Geometry	Solving Problems Involving Perimeter, Area, and Volume	Relate the geometric representation of the Pythagorean theorem to the algebraic representation $a^2 + b^2 = c^2$.	Pythagorean Triads
Measurement and Geometry	Solving Problems Involving Perimeter, Area, and Volume	Solve problems using the Pythagorean theorem, as required in applications.	Pythagorean Theorem Pythagoras: Find a Short Side (integers only) Pythagoras: Find a Short Side (decimal values) Pythagoras: Find a Short Side (rounding needed) Pythagoras and Perimeter Find Slant Height

Grade 9, Applied (MFM1P)

Strand	Substrand	Expectation	Activities
Measurement and Geometry	Solving Problems Involving Perimeter, Area, and Volume	Solve problems involving the areas and perimeters of composite two-dimensional shapes.	Area: Composite Shapes Area: Compound Figures Perimeter: Composite Shapes
Measurement and Geometry	Solving Problems Involving Perimeter, Area, and Volume	Develop, through investigation, the formulas for the volume of a pyramid, a cone, and a sphere.	Teacher directed
Measurement and Geometry	Solving Problems Involving Perimeter, Area, and Volume	Solve problems involving the volumes of prisms, pyramids, cylinders, cones, and spheres.	Volume: Prisms Volume: Pyramids Volume: Cylinders Volume: Cones Volume: Spheres Volume: Composite Figures
Measurement and Geometry	Investigating and Applying Geometric Relationships	Determine, through investigation using a variety of tools, and describe the properties and relationships of the interior and exterior angles of triangles, quadrilaterals, and other polygons, and apply the results to problems involving the angles of polygons.	Angle Measures in a Triangle Exterior Angles of a Triangle Quadrilaterals: Angle Sum with Equations Interior Angles
Measurement and Geometry	Investigating and Applying Geometric Relationships	Determine, through investigation using a variety of tools, and describe the properties and relationships of the angles formed by parallel lines cut by a transversal, and apply the results to problems involving parallel lines.	Vertically Opposite: Value of x Equal, Complementary or Supplementary Angles? Introduction to Angles on Parallel Lines 1 Introduction to Angles on Parallel Lines 3 Parallel Lines Angles and Parallel Lines
Measurement and Geometry	Investigating and Applying Geometric Relationships	Create an original dynamic sketch, paperfolding design, or other illustration that incorporates some of the geometric properties from this section, or find and report on some real-life application(s) of the geometric properties.	Teacher directed

Grade 9 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.01	Read and interpret money values given in words and symbols, using the correct place value, found in everyday contexts.	Teacher directed
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.02	Write money values, using correct units.	Teacher directed
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.03	Round money values to stated accuracies, in applications drawn from everyday situations.	Teacher directed
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.04	Use estimation strategies involving addition, subtraction, multiplication, and division to round money values appropriately within a given context.	Estimate Decimal Sums 1 Estimate Decimal Differences 1 Estimate Decimal Operations
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.05	Interpret numerical information drawn from the media or through conversation and explain its significance, using familiar references.	Teacher directed
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.06	Enter decimal numbers correctly on a numerical key pad and read and interpret decimal numbers correctly from a display.	Teacher directed
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.07	Demonstrate the effective use of a calculator in operations with decimals.	Teacher directed
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.08	Estimate the change for a transaction.	How much Change?
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.09	Represent a given coin or bill as a combination of other coins or bills.	Teacher directed
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.10	Identify different combinations of coins and bills that would result in a given amount of money.	Money Who's got the Money?
Developing and Consolidating Money Sense	Understanding and Using Decimals	DMS1.11	Judge the reasonableness of calculations involving decimals, through estimation using mental mathematics, where appropriate.	Teacher directed
Developing and Consolidating Money Sense	Solving Problems Involving Money	DMS2.01	Make the correct change for an offered amount with and without concrete materials.	How much Change?

Grade 9 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Developing and Consolidating Money Sense	Solving Problems Involving Money	DMS2.02	Solve problems involving estimating the totals of money values found in real contexts.	Money Problems: Four Operations
Developing and Consolidating Money Sense	Solving Problems Involving Money	DMS2.03	Solve problems requiring estimating and calculating the cost of projects that require the purchase of multiples of the same item.	Money Problems: Four Operations
Developing and Consolidating Money Sense	Solving Problems Involving Money	DMS2.04	Solve problems by exploring the cost of several items and produce an organized list, using technology as appropriate.	Teacher directed
Developing and Consolidating Money Sense	Solving Problems Involving Money	DMS2.05	Identify, record, and monitor daily purchases to determine personal weekly expenditures.	Teacher directed
Developing and Consolidating Money Sense	Communicating Information about Money	DMS3.01	Verbalize their observations and reflections regarding money sense and ask questions to clarify their understanding.	Teacher directed
Developing and Consolidating Money Sense	Communicating Information about Money	DMS3.02	Explain their reasoning used in problem solving and in judging reasonableness.	Teacher directed
Developing and Consolidating Money Sense	Communicating Information about Money	DMS3.03	Communicate, orally and in writing, the solutions to money problems and the results of investigations, using appropriate terminology, symbols, and form.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Using the Metric System	DCM1.01	Investigate, discuss, and describe applications from everyday life and the workplace that would involve the measurement of length in commonly used metric units (millimetre, centimetre, metre, and kilometre).	How Long Is That (Metric)?
Developing and Consolidating Concepts in Measurement	Understanding and Using the Metric System	DCM1.02	Investigate, discuss, and describe applications from everyday life and the workplace that would involve the measurement of mass in commonly used metric units (milligram, gram, and kilogram).	Mass Word Problems How Heavy?

Grade 9 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Developing and Consolidating Concepts in Measurement	Understanding and Using the Metric System	DCM1.03	Investigate, discuss, and describe applications from everyday life and the workplace that would involve the measurement of capacity in commonly used metric units (millilitre, litre, and kilolitre).	Capacity Word Problems
Developing and Consolidating Concepts in Measurement	Understanding and Using the Metric System	DCM1.04	Explain and use correctly prefixes in the metric system.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Using the Metric System	DCM1.05	Convert between metric units commonly used in everyday applications.	Converting cm and mm Converting Units of Mass Millilitres and Litres
Developing and Consolidating Concepts in Measurement	Understanding and Using the Metric System	DCM1.06	Demonstrate accuracy in measuring length, capacity, and mass in everyday applications, using teacher-selected tools, and record the measurements using the correct abbreviations for metric units.	How Long Is That (Metric)? How Heavy?
Developing and Consolidating Concepts in Measurement	Understanding and Using the Metric System	DCM1.07	Investigate, identify, and use personal referents to aid in the estimation of length, capacity, area, and mass in everyday situations.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Using the Metric System	DCM1.08	Estimate and use measurements of length, capacity, and mass in everyday applications.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Using the Imperial System	DCM2.01	Investigate, discuss, and describe applications from everyday life and the workplace that would involve the measurement of length in feet and inches.	How Long Is That (Customary)? Measure to the Nearest Half Inch
Developing and Consolidating Concepts in Measurement	Understanding and Using the Imperial System	DCM2.02	Measure length in feet and inches, to an accuracy of ¼ inch, using tape measures and 12-inch rulers.	How Long Is That (Customary)? Measure to the Nearest Half Inch
Developing and Consolidating Concepts in Measurement	Understanding and Using the Imperial System	DCM2.03	Record measurements, using commonly accepted abbreviations for the chosen units.	Measure to the Nearest Half Inch
Developing and Consolidating Concepts in Measurement	Understanding and Using the Imperial System	DCM2.04	Investigate, identify, and use personal referents to aid in the estimation of length in feet and inches.	Teacher directed

Grade 9 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Developing and Consolidating Concepts in Measurement	Understanding and Using the Imperial System	DCM2.05	Estimate and use measurements of lengths in feet and inches in everyday situations.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.01	Explore and describe situations from everyday life and the workplace that require calculation or measurement of perimeter.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.02	Estimate, measure, and calculate perimeters drawn from applications in everyday life and the workplace.	Perimeter: Squares and Rectangles Perimeter: Triangles Perimeter: Composite Shapes
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.03	Explain and illustrate how to determine the perimeter of any figure bounded by straight line segments.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.04	Explore and describe situations from everyday life and the workplace that require calculating and measuring area.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.05	Investigate the areas of a variety of rectangles and triangles, using concrete materials.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.06	Estimate, measure, and record rectangular areas found in everyday life and the workplace, using uniform non-standard units.	Bigger or Smaller Shape
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.07	Predict and explain, from experiences involving concrete materials, that the area of any rectangle can be found by multiplying its length by its width.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.08	Estimate and calculate the areas of rectangles and triangles, drawn from applications in everyday life and the workplace.	Area: Squares and Rectangles Area: Triangles
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.09	Estimate and calculate the areas of regions that can be broken into rectangles.	Area: Compound Figures
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.10	Explore and describe situations from everyday life and the workplace that require calculation or measurement of volume.	Filling Fast!

Grade 9 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.11	Investigate and calculate the volumes of a variety of prisms whose bases involve rectangular regions, by building the prisms using concrete materials.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.12	Predict and explain, from investigations involving the building of prisms, that the volume of a prism is given by multiplying the area of its base by its height.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.13	Estimate and calculate the volumes of rectangular prisms drawn from applications in everyday life and the workplace.	Volume: Rectangular Prisms 1
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.14	Select the most appropriate standard unit to measure the perimeter, area, or volume of a figure.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.15	Explain, using examples drawn from their everyday experiences, why length is measured in linear units, why area is measured in square units, and why volume is measured in cubic units.	Teacher directed
Developing and Consolidating Concepts in Measurement	Understanding and Applying Perimeter, Area, and Volume	DCM3.16	Solve problems involving perimeter, area, and volume in applications drawn from everyday situations.	Teacher directed
Developing and Consolidating Concepts in Measurement	Communicating Information about Measurement	DCM4.01	Organize measurement information, using a simple framework, draw conclusions from this data, and make decisions based on it.	Teacher directed
Developing and Consolidating Concepts in Measurement	Communicating Information about Measurement	DCM4.02	Verbalize their observations and reflections regarding measurements and ask questions to clarify their understanding.	Teacher directed
Developing and Consolidating Concepts in Measurement	Communicating Information about Measurement	DCM4.03	Explain their reasoning used in problem solving and in judging reasonableness.	Teacher directed
Developing and Consolidating Concepts in Measurement	Communicating Information about Measurement	DCM4.04	Communicate, orally and in writing, the solutions to measurement problems and the results of investigations, using appropriate terminology, symbols, and form.	Teacher directed

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Strand	Substrand	Expectation	Expectation Description	Activities
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.01	Represent the magnitudes of the fractions $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, and $\frac{3}{4}$ using manipulatives and by constructing diagrams and models.	Halves and Quarters Thirds and Sixths
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.02	Represent the addition and subtraction of $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1, in the context of fractional parts of an hour, a cup, a dollar, and an inch by constructing diagrams and using models.	Teacher directed
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.03	Estimate and add pairs of simple fractions with the support of an appropriate model.	Add Like Fractions Add Like Mixed Numbers
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.04	Interpret simple fractions of a dollar in decimal form.	Teacher directed
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.05	Explore the relationship between the fractions $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, and $\frac{3}{4}$ and decimals, using a calculator, concrete materials, and diagrams.	Teacher directed
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.06	Round decimal values appropriately within a given context.	Rounding Decimals 1
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.07	Multiply a fraction by a whole number, using a calculator.	Multiply Fraction by Whole Number
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.08	Represent and explain the meaning of percent as part of 100, by constructing diagrams, using concrete materials.	Modelling Percentages
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.09	Explore the relationship between fractions, decimals, and percentages, using a calculator, concrete materials, and diagrams.	Mixed decimal, percentage and fraction conversions

Grade 9 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.10	Identify and use common equivalences or approximations between fractions and percentages in contexts such as sales and discounts.	Teacher directed
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.11	Identify and use ratios, including equivalent ratios, to express the relationships among quantities represented by models and diagrams.	Ratio Word Problems: Ratio
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.12	Explore and describe the use of ratios from their personal experiences.	Teacher directed
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.13	Explore and identify rates drawn from their experiences and the units used in them.	Teacher directed
Developing Concepts in Proportional Reasoning	Constructing Understanding of Fractions, Percentages, Ratios, and Rates	DPR1.14	Calculate rates in activities drawn from their experiences.	Rates Rates Word Problems
Developing Concepts in Proportional Reasoning	Solving Problems	DPR2.01	Solve problems involving fractions and percentages in practical situations, by converting to decimals and using a calculator, where appropriate.	Fractions to Percentages (Calculator) Decimal to Percentage What Percentage?
Developing Concepts in Proportional Reasoning	Solving Problems	DPR2.02	Solve simple problems using equivalent ratios.	Ratio Word Problems: Ratio
Developing Concepts in Proportional Reasoning	Solving Problems	DPR2.03	Solve problems involving rates.	Rates Rates Word Problems
Developing Concepts in Proportional Reasoning	Solving Problems	DPR2.04	Calculate and compare the unit costs of items found in everyday situations.	Best Buy
Developing Concepts in Proportional Reasoning	Solving Problems	DPR2.05	Read, interpret, and explain, orally and in writing, data displayed in simple tables and graphs.	Interpreting Tables Conversion Graphs Line Graphs: Interpretation

Grade 9 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Developing Concepts in Proportional Reasoning	Communicating Information about Proportional Reasoning	DPR3.01	Verbalize their observations and reflections regarding proportional reasoning and ask questions to clarify their understanding.	Teacher directed
Developing Concepts in Proportional Reasoning	Communicating Information about Proportional Reasoning	DPR3.02	Explain their reasoning used in problem solving and in judging reasonableness.	Teacher directed
Developing Concepts in Proportional Reasoning	Communicating Information about Proportional Reasoning	DPR3.03	Communicate, orally and in writing, the solutions to proportional reasoning problems and the results of investigations, using appropriate terminology, symbols, and form.	Teacher directed

Grade 10, Academic (MPM2D)

Strand	Substrand	Expectation	Activities
Quadratic Relations of the Form $y = ax^2 + bx + c$	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.	Teacher directed
Quadratic Relations of the Form $y = ax^2 + bx + c$	Investigating the Basic Properties of Quadratic Relations	Determine, through investigation with and without the use of technology, that a quadratic relation of the form $y = ax^2 + bx + c$ ($a \neq 0$) can be graphically represented as a parabola, and that the table of values yields a constant second difference.	Graphing Parabolas
Quadratic Relations of the Form $y = ax^2 + bx + c$	Investigating the Basic Properties of Quadratic Relations	Identify the key features of a graph of a parabola, and use the appropriate terminology to describe them.	Vertex of a Parabola Parabolas and Marbles Parabolas and Rectangles
Quadratic Relations of the Form $y = ax^2 + bx + c$	Investigating the Basic Properties of Quadratic Relations	Compare, through investigation using technology, the features of the graph of $y = x^2$ and the graph of $y = 2^x$, and determine the meaning of a negative exponent and of zero as an exponent.	Graphing Exponentials
Quadratic Relations of the Form $y = ax^2 + bx + c$	Relating the Graph of $y = x^2$ and Its Transformations	Identify, through investigation using technology, the effect on the graph of $y = x^2$ of transformations by considering separately each parameter a, h, and k.	Symmetries of Graphs 1
Quadratic Relations of the Form $y = ax^2 + bx + c$	Relating the Graph of $y = x^2$ and Its Transformations	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.	Vertex of a Parabola Symmetries of Graphs 1
Quadratic Relations of the Form $y = ax^2 + bx + c$	Relating the Graph of $y = x^2$ and Its Transformations	Sketch, by hand, the graph of $y = a(x - h)^2 + k$ by applying transformations to the graph of $y = x^2$.	Teacher directed
Quadratic Relations of the Form $y = ax^2 + bx + c$	Relating the Graph of $y = x^2$ and Its Transformations	Determine the equation, in the form $y = a(x - h)^2 + k$, of a given graph of a parabola.	Teacher directed
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Quadratic Equations	Expand and simplify second-degree polynomial expressions, using a variety of tools and strategies.	Expand then Simplify Expanding Binomial Products Special Binomial Products
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Quadratic Equations	Factor polynomial expressions involving common factors, trinomials, and differences of squares, using a variety of tools and strategies.	Grouping in Pairs Factoring Quadratics 1 Factoring Quadratics 2
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Quadratic Equations	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 $y = a(x - r)(x - s)$.	Quadratic Equations 1 Quadratic Equations 2 Solve Quadratics: Coefficient of 1

Grade 10, Academic (MPM2D)

Strand	Substrand	Expectation	Activities
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Quadratic Equations	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.	Checking Quadratic Solutions Quadratic Formula The Discriminant Roots of the Quadratic
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Quadratic Equations	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.	Completing the Square Completing the Square 2
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Quadratic Equations	Sketch or graph a quadratic relation whose equation is given in the form $y = ax^2 + bx + c$, using a variety of methods.	Graphing Parabolas
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Quadratic Equations	Explore the algebraic development of the quadratic formula.	Teacher directed
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Quadratic Equations	Solve quadratic equations that have real roots, using a variety of methods.	Factoring Quadratics 1 Factoring Quadratics 2 Quadratic Formula Graphing Parabolas
Quadratic Relations of the Form $y = ax^2 + bx + c$	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.	Parabolas and Marbles Parabolas and Rectangles Vertex of a Parabola
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Problems Involving Quadratic Relations	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.	Parabolas and Marbles Parabolas and Rectangles
Analytic Geometry	Using Linear Systems to Solve Problems	Solve systems of two linear equations involving two variables, using the algebraic method of substitution or elimination.	Simultaneous Linear Equations Simultaneous Equations 1 Simultaneous Equations 2
Analytic Geometry	Using Linear Systems to Solve Problems	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.	Breakeven Point
Analytic Geometry	Solving Problems Involving Properties of Line Segments	Develop the formula for the midpoint of a line segment, and use this formula to solve problems.	Midpoint by Formula
Analytic Geometry	Solving Problems Involving Properties of Line Segments	Develop the formula for the length of a line segment, and use this formula to solve problems.	Distance Between Two Points
Analytic Geometry	Solving Problems Involving Properties of Line Segments	Develop the equation for a circle with centre (0, 0) and radius r, by applying the formula for the length of a line segment.	Teacher directed

Grade 10, Academic (MPM2D)

Strand	Substrand	Expectation	Activities
Analytic Geometry	Solving Problems Involving Properties of Line Segments	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 $x^2 + y^2 = r^2$.	Teacher directed
Analytic Geometry	Solving Problems Involving Properties of Line Segments	Solve problems involving the slope, length, and midpoint of a line segment.	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
Analytic Geometry	Using Analytic Geometry to Verify Geometric Properties	Determine, through investigation, some characteristics and properties of geometric figures.	Plane Figure Theorems
Analytic Geometry	Using Analytic Geometry to Verify Geometric Properties	Verify, using algebraic techniques and analytic geometry, some characteristics of geometric figures.	Coordinate Methods in Geometry
Analytic Geometry	Using Analytic Geometry to Verify Geometric Properties	Plan and implement a multi-step strategy that uses analytic geometry and algebraic techniques to verify a geometric property.	Teacher directed
Trigonometry	Investigating Similarity and Solving Problems Involving Similar Triangles	Verify, through investigation, the properties of similar triangles.	Similar Triangles Scale Factor Similar Figures
Trigonometry	Investigating Similarity and Solving Problems Involving Similar Triangles	Describe and compare the concepts of similarity and congruence.	Scale Factor Similar Triangles Similar Figures Congruent Triangles Congruent Figures (Grid) Congruent Figures: Find Values
Trigonometry	Investigating Similarity and Solving Problems Involving Similar Triangles	Solve problems involving similar triangles in realistic situations.	Teacher directed
Trigonometry	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.	Hypotenuse, Adjacent, Opposite Sin A Cos A Tan A
Trigonometry	Solving Problems Involving the Trigonometry of Right Triangles	Determine the measures of the sides and angles in right triangles, using the primary trigonometric ratios and the Pythagorean theorem.	Pythagorean Theorem Sin A Cos A Tan A Find Unknown Sides Find Unknown Angles

Grade 10, Academic (MPM2D)

Strand	Substrand	Expectation	Activities
Trigonometry	Solving Problems Involving the Trigonometry of Right Triangles	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.	Elevation and Depression Trigonometry Problems 1 Trigonometry Problems 2 Bearings
Trigonometry	Solving Problems Involving the Trigonometry of Acute Triangles	Explore the development of the sine law within acute triangles.	Sine Rule 1
Trigonometry	Solving Problems Involving the Trigonometry of Acute Triangles	Explore the development of the cosine law within acute triangles.	Teacher directed
Trigonometry	Solving Problems Involving the Trigonometry of Acute Triangles	Determine the measures of sides and angles in acute triangles, using the sine law and the cosine law.	Sine Rule 1 Cosine Rule 1 Cosine Rule 2
Trigonometry	Solving Problems Involving the Trigonometry of Acute Triangles	Solve problems involving the measures of sides and angles in acute triangles.	Sine Rule 1 Cosine Rule 1 Cosine Rule 2

Grade 10, Applied (MFM2P)

Strand	Substrand	Expectation	Activities
Measurement and Trigonometry	Solving Problems Involving Similar Triangles	Verify, through investigation, properties of similar triangles.	Similar Triangles
Measurement and Trigonometry	Solving Problems Involving Similar Triangles	Determine the lengths of sides of similar triangles, using proportional reasoning.	Similar Triangles
Measurement and Trigonometry	Solving Problems Involving Similar Triangles	Solve problems involving similar triangles in realistic situations.	Teacher directed
Measurement and Trigonometry	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.	Hypotenuse, Adjacent, Opposite
Measurement and Trigonometry	Solving Problems Involving the Trigonometry of Right Triangles	Determine the measures of the sides and angles in right triangles, using the primary trigonometric ratios and the Pythagorean theorem.	Pythagorean Theorem Sin A Cos A Tan A Find Unknown Sides Find Unknown Angles
Measurement and Trigonometry	Solving Problems Involving the Trigonometry of Right Triangles	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.	Elevation and Depression Trigonometry Problems 1 Trigonometry Problems 2 Bearings
Measurement and Trigonometry	Solving Problems Involving the Trigonometry of Right Triangles	Describe, through participation in an activity, the application of trigonometry in an occupation.	Teacher directed
Measurement and Trigonometry	Solving Problems Involving Surface Area and Volume, Using the Imperial and Metric Systems of Measurement	Use the imperial system when solving measurement problems.	Perimeter: Squares and Rectangles Calculate Area of Shapes (inches, feet, yards)
Measurement and Trigonometry	Solving Problems Involving Surface Area and Volume, Using the Imperial and Metric Systems of Measurement	Perform everyday conversions between the imperial system and the metric system and within these systems, as necessary to solve problems involving 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
Measurement and Trigonometry	Solving Problems Involving Surface Area and Volume, Using the Imperial and Metric Systems of Measurement	Determine, through investigation, the relationship for calculating the surface area of a pyramid.	Nets Surface Area: Square Pyramids Surface Area: Rectangular Pyramids

Grade 10, Applied (MFM2P)

Strand	Substrand	Expectation	Activities
Measurement and Trigonometry	Solving Problems Involving Surface Area and Volume, Using the Imperial and Metric Systems of Measurement	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.	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
Modelling Linear Relations	Manipulating and Solving Algebraic Equations	Solve first-degree equations involving one variable, including equations with fractional coefficients.	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
Modelling Linear Relations	Manipulating and Solving Algebraic Equations	Determine the value of a variable in the first degree, using a formula.	Teacher directed
Modelling Linear Relations	Manipulating and Solving Algebraic Equations	Express the equation of a line in the form $y = mx + b$, given the form $Ax + By + C = 0$.	General Form of a Line
Modelling Linear Relations	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 $m = \frac{rise}{run}$.	Gradient
Modelling Linear Relations	Graphing and Writing Equations of Lines	Identify, through investigation, $y = mx + b$ as a common form for the equation of a straight line, and identify the special cases $x = a$, $y = b$.	Which Straight Line? Horizontal and Vertical Lines
Modelling Linear Relations	Graphing and Writing Equations of Lines	Identify, through investigation with technology, the geometric significance of m and b in the equation $y = mx + b$.	Gradient Intercepts Which Straight Line? Equation of a Line 1
Modelling Linear Relations	Graphing and Writing Equations of Lines	Identify, through investigation, properties of the slopes of lines and line segments, using graphing technology to facilitate investigations, where appropriate.	y=ax Equation of a Line 1 Are They Parallel?
Modelling Linear Relations	Graphing and Writing Equations of Lines	Graph lines by hand, using a variety of techniques.	y=ax Which Straight Line?

Grade 10, Applied (MFM2P)

Strand	Substrand	Expectation	Activities
Modelling Linear Relations	Graphing and Writing Equations of Lines	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.	Determining the Rule for a Line 1 Equation of a Line 1 Equation from Point and Gradient Equation from Two Points
Modelling Linear Relations	Solving and Interpreting Systems of Linear Equations	Determine graphically the point of intersection of two linear relations.	Solve Systems by Graphing
Modelling Linear Relations	Solving and Interpreting Systems of Linear Equations	Solve systems of two linear equations involving two variables with integral coefficients, using the algebraic method of substitution or elimination.	Simultaneous Equations 1 Simultaneous Equations 2 Simultaneous Linear Equations
Modelling Linear Relations	Solving and Interpreting Systems of 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.	Breakeven Point
Quadratic Relations of the Form $y = ax^2 + bx + c$	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.	Expand then Simplify Expanding Binomial Products Special Binomial Products
Quadratic Relations of the Form $y = ax^2 + bx + c$	Manipulating Quadratic Expressions	Factor binomials and trinomials involving one variable up to degree two, by determining a common factor using a variety of tools and strategies.	Factoring Factoring Expressions
Quadratic Relations of the Form $y = ax^2 + bx + c$	Manipulating Quadratic Expressions	Factor simple trinomials of the form $x^2 + bx + c$, using a variety of tools and strategies.	Grouping in Pairs Factoring Quadratics 1
Quadratic Relations of the Form $y = ax^2 + bx + c$	Manipulating Quadratic Expressions	Factor the difference of squares of the form $x^2 - a^2$.	Teacher directed
Quadratic Relations of the Form $y = ax^2 + bx + c$	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.	Teacher directed
Quadratic Relations of the Form $y = ax^2 + bx + c$	Identifying Characteristics of Quadratic Relations	Determine, through investigation using technology, that a quadratic relation of the form $y = ax^2 + bx + c$ $(a \neq 0)$ can be graphically represented as a parabola, and determine that the table of values yields a constant second difference.	Graphing Parabolas
Quadratic Relations of the Form $y = ax^2 + bx + c$	Identifying Characteristics of Quadratic Relations	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.	Vertex of a Parabola

Grade 10, Applied (MFM2P)

Strand	Substrand	Expectation	Activities
Quadratic Relations of the Form $y = ax^2 + bx + c$	Identifying Characteristics of Quadratic Relations	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.	Teacher directed
Quadratic Relations of the Form $y = ax^2 + bx + c$	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.	Parabolas and Rectangles Parabolas and Marbles
Quadratic Relations of the Form $y = ax^2 + bx + c$	Solving Problems by Interpreting Graphs of Quadratic Relations	Solve problems by interpreting the significance of the key features of graphs obtained by collecting experimental data involving quadratic relations.	Teacher directed

Grade 10 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Extending Money Sense	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.	Money Everyday Money Who has the Money?
Extending Money Sense	Understanding and Using Decimal Numbers in Solving Problems	EMS1.02	Explain the meaning of negative numbers as they apply to money and use them to solve problems involving money.	Teacher directed
Extending Money Sense	Understanding and Using Decimal Numbers in Solving Problems	EMS1.03	Interpret numerical data drawn from the media and explain its significance, using other number references.	Teacher directed
Extending Money Sense	Understanding and Using Decimal Numbers in Solving Problems	EMS1.04	Demonstrate the effective use of a calculator in operations with decimals.	Teacher directed

Grade 10 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Extending Money Sense	Understanding and Using Decimal Numbers in Solving Problems	EMS1.05	Judge the reasonableness of calculations involving decimals through estimation.	Estimate Decimal Sums 1 Estimate Decimal Sums 2 Estimate Decimal Differences 1 Estimate Decimal Differences 2
Extending Money Sense	Understanding and Using Decimal Numbers in Solving Problems	EMS1.06	Solve problems involving sales tax, discounts, restaurant tips, and commission earnings.	Commission Successive Discounts
Extending Money Sense	Understanding and Using Decimal Numbers in Solving Problems	EMS1.07	Investigate and identify possible part-time jobs, determine hourly rates of pay, and calculate possible weekly, monthly, and yearly total incomes.	Teacher directed
Extending Money Sense	Understanding and Using Decimal Numbers in Solving Problems	EMS1.08	Solve problems involving the accomplishment of a particular goal, including investigating, planning, gathering, and organizing data, and making relevant calculations.	Budgeting
Extending Money Sense	Communicating Information about Money	EMS2.01	Verbalize their observations and reflections regarding money sense and ask questions to clarify their understanding.	Teacher directed
Extending Money Sense	Communicating Information about Money	EMS2.02	Explain their reasoning used in problem solving and in judging reasonableness.	Teacher directed
Extending Money Sense	Communicating Information about Money	EMS2.03	Communicate, orally and in writing, the solutions to money problems and the results of investigations, using appropriate terminology, symbols, and form.	Teacher directed
Extending Understanding of Measurement	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.	Teacher directed
Extending Understanding of Measurement	Estimating and Measuring Using the Metric System	EUM1.02	Solve problems drawn from everyday applications requiring the conversion between commonly used metric units.	Capacity Addition Converting cm and mm Converting Units of Mass Mass Addition

Grade 10 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Extending Understanding of Measurement	Estimating and Measuring Using the Metric System	EUM1.03	Estimate, using standard units, measurements of length, capacity, and mass that arise from their everyday experience.	Teacher directed
Extending Understanding of Measurement	Estimating and Measuring Using the Metric System	EUM1.04	Read and use schedules to solve problems.	Using Timetables Elapsed Time
Extending Understanding of Measurement	Estimating and Measuring Using the Metric System	EUM1.05	Read, write, and interpret dates, using a specified numerical format.	Teacher directed
Extending Understanding of Measurement	Estimating and Measuring Using the Metric System	EUM1.06	Solve problems to determine the elapsed time between two given dates or two given times.	Time Zones What Time Will it Be?
Extending Understanding of Measurement	Estimating and Measuring Using the Metric System	EUM1.07	Identify and use personal referents to aid in the estimation of temperature.	Teacher directed
Extending Understanding of Measurement	Estimating and Measuring Using the Metric System	EUM1.08	Describe applications from everyday life and the workplace that involve a combination of perimeter, area, volume, mass, capacity, time, and/or money.	Teacher directed
Extending Understanding of Measurement	Estimating and Measuring Using the Imperial System	EUM2.01	Measure length in feet and inches, to accuracies of $\frac{1}{8}$ inch and $\frac{1}{16}$ inch, using tape measures and 12-inch rulers.	Teacher directed
Extending Understanding of Measurement	Estimating and Measuring Using the Imperial System	EUM2.02	Record linear measurements, using commonly accepted abbreviations for the chosen units.	Teacher directed
Extending Understanding of Measurement	Estimating and Measuring Using the Imperial System	EUM2.03	Make estimates and accurate measurements of length in the Imperial system to construct a model.	Teacher directed
Extending Understanding of Measurement	Estimating and Measuring Using the Imperial System	EUM2.04	Explore and identify approximate relationships between non-linear units of measure in the metric and Imperial systems.	Teacher directed
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	EUM3.01	Identify the parts of a circle, using the correct terminology.	Labelling Circles

Grade 10 LDCC

Strand	Substrand	Expectation	Expectation Description	Activities
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	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.	Teacher directed
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	EUM3.03	Validate the formula for the circumference of a circle by comparing measurements of the circumference to the calculations, using the formula $C = \pi d$.	Teacher directed
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	EUM3.04	Solve authentic problems requiring the calculation of the circumference of a circle.	Calculate Circumference of Circles
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	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.	Perimeter Detectives 1 Perimeter Detectives 2
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	EUM3.06	Estimate the size of a given angle by comparing it to angles of 30°, 45°, 60°, 90°, 180°, or 360°.	Estimating Angles
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	EUM3.07	Estimate and calculate the areas of circles and fractions of circles drawn from applications in the environment.	Area: Circles 1 Area: Sectors (Degrees)
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	EUM3.08	Validate the formula for the area of a circle by comparing approximate measurements of the area to the calculations, using the formula $A = \pi r^2$.	Teacher directed
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	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.	Teacher directed

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Strand	Substrand	Expectation	Expectation Description	Activities
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	EUM3.10	Solve authentic problems requiring the calculation of the areas of composite figures made up of rectangles and half- or quarter-circles.	Area: Circles 1 Area: Annulus
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	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.	Volume: Rectangular Prisms 1 Volume: Prisms Volume: Cylinders
Extending Understanding of Measurement	Solving Problems Involving Circumference, Perimeter, Area, and Volume	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.	Teacher directed
Extending Understanding of Measurement	Communicating Information about Measurement	EUM4.01	Organize measurement information, using a simple framework, draw conclusions from this data, and make decisions based on it.	Teacher directed
Extending Understanding of Measurement	Communicating Information about Measurement	EUM4.02	Verbalize their observations and reflections regarding measurements and ask questions to clarify their understanding.	Teacher directed
Extending Understanding of Measurement	Communicating Information about Measurement	EUM4.03	Explain their reasoning used in problem solving and in judging reasonableness.	Teacher directed
Extending Understanding of Measurement	Communicating Information about Measurement	EUM4.04	Communicate, orally and in writing, the solutions to measurement problems and the results of investigations, using appropriate terminology, symbols, and form.	Teacher directed
Extending Understanding of Proportional Reasoning	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.	Modelling Percentages
Extending Understanding of Proportional Reasoning	Applying Fractions, Percent, Ratio, and Rate in Solving Problems	EPR1.02	Recall from memory the most commonly used equivalences or approximations between fractions and percentages.	Common Fractions as Percentages

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Extending Understanding of Proportional Reasoning	Applying Fractions, Percent, Ratio, and Rate in Solving Problems	EPR1.03	Solve problems involving the most commonly used equivalences between fractions and percentages.	Percents to Fractions Percents and Decimals Decimals to Fractions 2
Extending Understanding of Proportional Reasoning	Applying Fractions, Percent, Ratio, and Rate in Solving Problems	EPR1.04	Round decimal values appropriately in solving problems drawn from everyday situations.	Rounding Decimals 2
Extending Understanding of Proportional Reasoning	Applying Fractions, Percent, Ratio, and Rate in Solving Problems	EPR1.05	Solve problems involving fractions and percentages in practical situations, by converting to decimals and using a calculator, where appropriate.	Teacher directed
Extending Understanding of Proportional Reasoning	Applying Fractions, Percent, Ratio, and Rate in Solving Problems	EPR1.06	Measure areas of personal interest, using metric or Imperial units, and construct scale diagrams, using grid paper.	Scale drawings Scale Scale Measurement
Extending Understanding of Proportional Reasoning	Applying Fractions, Percent, Ratio, and Rate in Solving Problems	EPR1.07	Write ratios describing relationships in the school environment.	Teacher directed
Extending Understanding of Proportional Reasoning	Applying Fractions, Percent, Ratio, and Rate in Solving Problems	EPR1.08	Describe the effects of changing the parts of a given ratio proportionately and disproportionately in activities in which the results are observable.	Teacher directed
Extending Understanding of Proportional Reasoning	Applying Fractions, Percent, Ratio, and Rate in Solving Problems	EPR1.09	Solve problems using proportions.	Ratio Word Problems Rates Word Problems
Extending Understanding of Proportional Reasoning	Applying Fractions, Percent, Ratio, and Rate in Solving Problems	EPR1.10	Solve problems involving the calculation of rates drawn from a variety of everyday contexts and from familiar social issues.	Rates Word Problems
Extending Understanding of Proportional Reasoning	Communicating Information	EPR2.01	Read, interpret, and explain, orally and in writing, data displayed in tables and graphs.	Interpreting Tables Line Graphs: Interpretation

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Strand	Substrand	Expectation	Expectation Description	Activities
Extending Understanding of Proportional Reasoning	Communicating Information	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.	Teacher directed
Extending Understanding of Proportional Reasoning	Communicating Information	EPR2.03	Identify graphs that misrepresent data and explain why the graphs are misleading.	Teacher directed

Mathletics

3P Learning