Mathletics

British Columbia Curriculum

Alignment with Mathletics

Supported by independent evidence-based research and practice.

Grades K – 9

Mathletics

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Mathletics and the British Columbia Outcomes

At Mathletics, we are committed to providing students, teachers and schools with high-quality learning resources that align with current curricula. Our Content and Curriculum Team has created grade-level courses that specifically follow the British Columbia Curriculum K–9 (first implemented for the 2016-2017 school year).

The Big Ideas, Curricular Competencies and Content of the curriculum are supported with more than 1200 adaptive practice activities, as well as a range of eBooks, videos and interactives. You can be assured that students have access to relevant and targeted content.

This document maps Mathletics activities to the content (and elaborations) of the curriculum.

All of the activities mapped to a particular grade level in this document are included as 'core' activities in the topics of the Mathletics course for that grade level. In some topics, a few additional activities from the prior grade level have been included as 'core' activities in the course in order to support the learning of the grade level.

The 'Something Easier' section for each topic generally includes activities from the related topic of the prior grade level.

In most grades, there are some additional topics labelled 'REVIEW'. This allows students to revisit important concepts from the prior grade before attempting the related topic for their grade level. In these instances, the 'Something Easier' for the grade-level topic may not contain any activities as they have been included in the REVIEW topic. As a result the 'Are You Ready?' pre-test may not exist. Teachers can use the 'Topic Test' of the REVIEW topic as the pre-test for the related topic of the grade level.

3P Learning, Canada

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Alignment with Mathletics

Kindergarten

Big Ideas
• **Numbers** represent quantities that can be decomposed into smaller parts. • One-to-one correspondence and a sense of 5 and 10 are essential for **fluency** with numbers. • Repeating elements in **patterns** can be identified. • Objects have **attributes** that can be described, measured, and compared. • **Familiar events** can be described as likely or unlikely and compared.

Content	Elaborations	Activities
number concepts to 10	• counting: o one-to-one correspondence o conservation o cardinality o stable order counting o sequencing 1-10 o linking sets to numerals o subitizing • using counting collections made of local materials • counting to 10 in more than one language, including local First Peoples language or languages	Count to 5 How Many? Dot Display Concept of Zero Order Numbers to 10 Ordinal Numbers More, Less or the Same to 10
ways to make 5	• perceptual subitizing (e.g., I see 5) • conceptual subitizing (e.g., I see 4 and 1) • comparing quantities, 1-10 • using concrete materials to show ways to make 5 • Traditional First Peoples counting methods involved using fingers to count to 5 and for groups of 5.	Picture Graphs: More or Less
decomposition of numbers to 10	• decomposing and recomposing quantities to 10 • Numbers can be arranged and recognized. • benchmarks of 5 and 10 • making 10 • part-part-whole thinking • using concrete materials to show ways to make 10 • whole-class number talks	Adding to Make 5 and 10 Add and Subtract Using Graphs
repeating patterns with two or three elements	• sorting and classifying using a single attribute • identifying patterns in the world • repeating patterns with 2-3 elements • identifying the core • representing repeating patterns in various ways • noticing and identifying repeating patterns in First Peoples and local art and textiles, including beadwork and beading, and frieze work in borders	Complete the Pattern Hot or Cold?
change in quantity to 10, using concrete materials	• generalizing change by adding 1 or 2 • modeling and describing number relationships through change (eg., build and change tasks - begin with four cubes, what do you need to do to change it to six? to change it to 3?)	Adding to Make 5 and 10 Add and Subtract Using Graphs

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Kindergarten

Content	Elaborations	Activities
equality as a balance and inequality as an imbalance	• modeling equality as balanced and inequality as imbalanced using concrete and visual models (e.g., using a pan balance with cubes on each side to show equal and not equal) • fish drying and sharing	Balancing Objects Balancing Act
direct comparative measurement (e.g., linear, mass, capacity)	• understanding the importance of using a baseline for direct comparison in linear measurement • linear height, width, length (e.g., longer than, shorter than, taller than, wider than) • mass (e.g., heavier than, lighter than, same as) • capacity (e.g., holds more, holds less)	Everyday Length Comparing Length Everyday Mass How Full? Which Holds More? Filling Fast! Comparing Volume
single attributes of 2D shapes and 3D objects	• At this level, using specific math terminology to name and identify 2D shapes and 3D objects is not expected. • sorting 2D shapes and 3D objects using a single attribute • building and describing 3D objects (e.g., shaped like a can) • exploring, creating, and describing 2D shapes • using positional language, such as beside, on top of, under, and in front of	Same and Different Where is it? Following Directions
concrete or pictorial **graphs** as a visual tool	• creating concrete and pictorial graphs to model the purpose of graphs and provide opportunities for mathematical discussions (e.g., survey the students about how they got to school, then represent the data in a graph and discuss together as a class).	Read Graphs Comparing groups of objects
likelihood of **familiar life events**	• using the language of probability, such as unlikely or likely (e.g., Could it snow tomorrow?)	Will it Happen? Most Likely and Least Likely
financial literacy — attributes of coins, and financial role-play	• noticing attributes of Canadian coins (colour, size, pictures) • identifying the names of coins • role-playing financial transactions, such as in a restaurant, bakery, or store, using whole numbers to combine purchases (e.g., a muffin is $2.00 and a juice is $1.00), and integrating the concept of wants and needs • token value (e.g., wampum bead/trade beads for furs)	Under review

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Grade 1

Big Ideas
• **Numbers** to 20 represent quantities that can be decomposed into 10s and 1s. • Addition and subtraction with numbers to 10 can be modelled concretely, pictorially, and symbolically to develop computational **fluency**. • Repeating elements in **patterns** can be identified. • Objects and shapes have **attributes** that can be described, measured, and compared. • Concrete graphs help us to compare and interpret **data** and show one-to-one correspondence.

Content	Elaborations	Activities
number concepts to 20	• counting: o counting on and counting back o skip-counting by 2 and 5 o sequencing numbers to 20 o comparing and ordering numbers to 20 o Numbers to 20 can be arranged and recognized. o subitizing o base 10 o 10 and some more • books published by Native Northwest: *Learn to Count*, by various artists; *Counting Wild Bears*, by Gryn White; *We All Count*, by Jason Adair; *We All Count*, by Julie Flett (nativenorthwest.com) using counting collections made of local materials; counting in different languages; different First Peoples counting systems (e.g., Tsimshian) • *Tlingit Math Book*	Counting Up to 20 Counting Back Within 20 Before, After and Between to 20 Order Numbers to 20 More, Less or the Same to 20 How Many Dots? Making Teen Numbers Matching Numbers to 10 Matching Numbers to 20
ways to **make 10**	• decomposing 10 into parts • Numbers to 10 can be arranged and recognized. • benchmarks of 10 and 20 • Traditional First Peoples counting methods involved using fingers to count to 5 and for groups of 5. • traditional songs/singing and stories	Adding to Make 5 and 10 Add and Subtract Using Graphs

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Grade 1

Content	Elaborations	Activities
addition and subtraction to 20 (understanding of operation and process)	• decomposing 20 into parts • mental math strategies: o counting on o making 10 o doubles • Addition and subtraction are related. • whole-class number talks • nature scavenger hunt in *Kaska Counting Book*	Model Addition Adding to 5 Adding to Ten Adding In Any Order Commutative Property of Addition Addictive Addition Add 3 Numbers Using Bonds to 10 Add 3 Single Digit Numbers Doubles and Near Doubles Model Subtraction Subtracting From 5 Subtracting from Ten Subtracting from 20 Simple Subtraction All about Ten All about Twenty Fact Families: Add and Subtract Adding to 10 Word Problems Add and Subtract Problems Related Facts 1 Problems: Addition and Subtraction
repeating patterns with multiple elements and attributes	• identifying sorting rules • repeating patterns with multiple elements/attributes • translating patterns from one representation to another (e.g., an orange-blue pattern could be translated to a circle-square pattern) • letter coding of pattern • predicting an element in repeating patterns using a variety of strategies • patterns using visuals (ten-frames, hundred charts) • investigating numerical patterns (e.g., skip-counting by 2s or 5s on a hundred chart) • beading using 3–5 colours	Sort It Complete the Pattern Simple Patterns Missing it! Colour Patterns Pattern Error
change in quantity to 20, concretely and verbally	• verbally describing a change in quantity (e.g., I can build 7 and make it 10 by adding 3)	Composing numbers to 10 Composing Numbers to 20
meaning of **equality and inequality**	• demonstrating and explaining the meaning of equality and inequality • recording equations symbolically, using = and ≠	Composing numbers to 10 Composing Numbers to 20

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Grade 1

Content	Elaborations	Activities
direct measurement with non-standard units (non-uniform and uniform)	• Non-uniform units are not consistent in size (e.g., children's hands, pencils); uniform units are consistent in size (e.g., interlocking cubes, standard paper clips). • understanding the importance of using a baseline for direct comparison in linear measurement • using multiple copies of a unit • iterating a single unit for measuring (e.g., to measure the length of a string with only one cube, a student iterates the cube over and over, keeping track of how many cubes long the string is) • tiling an area • rope knots at intervals • using body parts to measure • book: *An Anishnaabe Look at Measurement*, by Rhonda Hopkins and Robin King-Stonefish • hand/foot tracing for mitten/moccasin making	Measuring Length with Blocks Compare Length
comparison of **2D shapes and 3D objects**	• sorting 3D objects and 2D shapes using one attribute, and explaining the sorting rule • comparing 2D shapes and 3D objects in the environment • describing relative positions, using positional language (e.g., up and down, in and out) • replicating composite 2D shapes and 3D objects (e.g., putting two triangles together to make a square)	Match the Solid 1 Collect Simple Shapes Left or Right?
concrete graphs, using one-to-one correspondence	• creating, describing, and comparing concrete graphs	Comparing groups of objects Picture Graphs: More or Less
likelihood of **familiar life events**, using comparative language	• using the language of probability (e.g., never, sometimes, always, more likely, less likely) • cycles (Elder or knowledge keeper to speak about ceremonies and life events)	Chance Gauge
financial literacy — values of coins, and monetary exchanges	• identifying values of coins (nickels, dimes, quarters, loonies, and toonies) • counting multiples of the same denomination (nickels, dimes, loonies, and toonies) • Money is a medium of exchange. • role-playing financial transactions (e.g., using coins and whole numbers), integrating the concept of wants and needs • trade games, with understanding that objects have variable value or worth (shells, beads, furs, tools)	Under review

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Grade 2

Big Ideas

- **Numbers** to 100 represent quantities that can be decomposed into 10s and 1s.
- Development of computational **fluency** in addition and subtraction with numbers to 100 requires an understanding of place value.
- The regular change in increasing **patterns** can be identified and used to make generalizations.
- Objects and shapes have **attributes** that can be described, measured, and compared.
- Concrete items can be represented, compared, and interpreted pictorially in **graphs**.

Content	Elaborations	Activities
number concepts to 100	• counting: o skip-counting by 2, 5, and 10: - using different starting points - increasing and decreasing (forward and backward) • Quantities to 100 can be arranged and recognized: o comparing and ordering numbers to 100 o benchmarks of 25, 50, and 100 o place value: - understanding of 10s and 1s - understanding the relationship between digit places and their value, to 99 (e.g., the digit 4 in 49 has the value of 40) - decomposing two-digit numbers into 10s and 1s • even and odd numbers	1 to 30 Reading Numbers to 30 1st to 31st Counting forward Counting Backward Going Up Going Down Before, After & Between to 100 Arranging Numbers Number Lines Number Line Order Count by 2s, 5s and 10s Odd or Even Place Value 1 Making Numbers Count Making Big Numbers Count 1 More, 2 Less 1 More, 10 Less Greater or Less to 100 Repartition Two-digit Numbers Nearest Ten?
benchmarks of 25, 50, and 100 and personal referents	• seating arrangements at ceremonies/feasts	Complements to 10, 20, 50 Complements to 50 and 100
addition and subtractiton **facts to 20** (introduction of computational strategies)	• adding and subtracting numbers to 20 • fluency with math strategies for addition and subtraction (e.g., making or bridging 10, decomposing, identifying related doubles, adding on to find the difference)	Addition Facts All about Ten All about Twenty Fact Families: Add and Subtract Doubles and Halves to 10 Add 3 Numbers Using Bonds to 10 Doubles and Halves to 20 Related Facts 1 Problems: Addition and Subtraction

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Grade 2

Content	Elaborations	Activities
addition and subtraction to 100	• decomposing numbers to 100 • estimating sums and differences to 100 • using strategies such as looking for multiples of 10, friendly numbers (e.g., 48 + 37, 37 = 35 + 2, 48 + 2, 50 + 35 = 85), decomposing into 10s and 1s and recomposing (e.g., 48 + 37, 40 + 30 = 70, 8 +7 = 15, 70 +15 = 85), and compensating (e.g., 48 + 37, 48 +2 = 50, 37 – 2 = 35, 50 + 35 = 80) • adding up to find the difference • using an open number line, hundred chart, ten-frames • using addition and subtraction in real-life contexts and problem-based situations • whole-class number talks	Subtract Tens 10 More, 10 Less Adding to 2-digit numbers Mental Addition Mental Subtraction Repartition to Subtract/Decompose numbers to subtract Partition Puzzles 1 Bar Model Problems 1 Bar Model Problems 2 Add 3 Numbers: Bonds to Multiples of 10
repeating and increasing **patterns**	• exploring more complex repeating patterns (e.g., positional patterns, circular patterns) • identifying the core of repeating patterns (e.g., the pattern of the pattern that repeats over and over) • increasing patterns using manipulatives, sounds, actions, and numbers (0 to 100) • Métis finger weaving • First Peoples head/armband patterning • online video and text: *Small Number Counts to 100*	Complete the Pattern Simple Patterns Missing it! Colour Patterns Pattern Error Count by Twos Counting by Twos Count by Fives Counting by Fives Count by Tens Counting by Tens Counting on a 100 grid
change in quantity, using pictorial and symbolic representation	• numerically describing a change in quantity (e.g., for 6 + n = 10, visualize the change in quantity by using ten-frames, hundred charts, etc.)	Under review
symbolic representation of equality and inequality	Under review	Composing numbers to 10 Composing Numbers to 20
direct linear measurement, introducing standard metric units	• centimetres and metres • estimating length • measuring and recording length, height, and width, using standard units	Ordering Length (cm) How Long is That?
multiple attributes of **2D shapes and 3D objects**	• sorting 2D shapes and 3D objects, using two attributes, and explaining the sorting rule • describing, comparing, and constructing 2D shapes, including triangles, squares, rectangles, circles • identifying 2D shapes as part of 3D objects • usin g traditional northwest coast First Peoples shapes (ovoids, U, split U, and local art shapes) reflected in the natural environment	Sort It Match the Object Collect the Polygons Count Sides and Corners Relate Shapes and Solids

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Grade 2

Content	Elaborations	Activities
pictorial representation of concrete graphs, using one-to-one correspondence	• collecting data, creating a concrete graph, and representing the graph, using a pictorial representation through grids, stamps, drawings • one-to-one correspondence	Comparing groups of objects Picture Graphs: More or Less Picture Graphs: Single-Unit Scale Tallies
likelihood of **familiar life events**, using comparative language	• using comparative language (e.g., certain, uncertain; more, less, or equally likely)	Chance Gauge
financial literacy — coin combinations to 100 cents, and spending and saving	• counting simple mixed combinations of coins to 100 cents • introduction to the concepts of spending and saving, integrating the concepts of wants and needs • role-playing financial transactions (e.g., using bills and coins)	Skip Counting with Coins

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Grade 3

Big Ideas

- Fractions are a type of **number** that can represent quantities.
- Development of computational **fluency** in addition, subtraction, multiplication, and division of whole numbers requires flexible decomposing and composing.
- Regular increases and decreases in **patterns** can be identified and used to make generalizations.
- Standard units are used to describe, measure, and compare **attributes** of objects' shapes.
- The likelihood of possible **outcomes** can be examined, compared, and interpreted.

Content	Elaborations	Activities
number concepts to 1000	• counting: o skip-counting by any number from any starting point, increasing and decreasing (i.e., forward and backward) o Skip-counting is related to multiplication. o investigating place-value based counting patterns (e.g., counting by 10s, 100s; bridging over a century; noticing the role of zero as a placeholder 698, 699, 700, 701; noticing the predictability of our number system) • Numbers to 1000 can be arranged and recognized: o comparing and ordering numbers o estimating large quantities • place value: o 100s, 10s, and 1s o understanding the relationship between digit places and their values, to 1000 (e.g., the digit 4 in 342 has the value of 40 or 4 tens) o understanding the importance of 0 as a place holder (e.g., in the number 408, the zero indicates that there are 0 tens) • instructional resource: *Math in a Cultural Context,* by Jerry Lipka	Count Forward Patterns Count Backward Patterns Counting up in 4s Counting up in 6s Counting up in 7s Counting up in 8s Model Numbers Which is Bigger? Which is Smaller? Compare Numbers to 20 Compare Numbers to 50 Compare Numbers to 100 Place Value 2 Place Value Partitioning Understanding Place Value 1 Nearest Hundred?
fraction concepts	• Fractions are numbers that represent an amount or quantity. • Fractions can represent parts of a region, set, or linear model. • Fraction parts are equal shares or equal-sized portions of a whole or unit. • Provide opportunities to explore and create fractions with concrete materials. • recording pictorial representations of fraction models and connecting to symbolic notation • equal partitioning • equal sharing, pole ratios as visual parts, medicine wheel, seasons	Halves Is it Half? Halves and Quarters Shade fractions Thirds and Sixths Counting with Fractions on a Number Line Model Fractions Part-Whole Rods 1 Uneven partitioned shapes 1 Uneven partitioned shapes 2 Partition into Equal Parts Fraction Fruit Sets 1 Fraction Fruit Sets 2

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Grade 3

Content	Elaborations	Activities
addition and subtraction to 1000	• using flexible computation strategies, involving taking apart (e.g., decomposing using friendly numbers and compensating) and combining numbers in a variety of ways, regrouping • estimating sums and differences of all operations to 1000 • using addition and subtraction in real-life contexts and problem-based situations • whole-class number talks	Add 3 Numbers: Bonds to Multiples of 10 Add 3 Numbers: Bonds to 100 Jump Add and Subtract Split Add and Subtract Bump Add and Subtract Compensation - Add Compensation - Subtract Magic Symbols 1 Partition Puzzles 2 Pyramid Puzzles 1 Pyramid Puzzles 2 Estimate Sums Estimate Differences
addition and subtraction facts to 20 (emerging **computational fluency**)	• adding and subtracting of numbers to 20 • demonstrating fluency with math strategies for addition and subtraction (e.g., decomposing, making and bridging 10, related doubles, and commutative property) • Addition and subtraction are related. • At the end of Grade 3, most students should be able to recall addition facts to 20.	Addition Facts All about Ten All about Twenty Fact Families: Add and Subtract Add 3 Numbers Using Bonds to 10 Doubles and Halves to 10 Doubles and Halves to 20 Related Facts 1 Problems: Addition and Subtraction
multiplication and division concepts	• understanding concepts of multiplication (e.g., groups of, arrays, repeated addition) • understanding concepts of division (e.g., sharing, grouping, repeated subtraction) • Multiplication and division are related. • Provide opportunities for concrete and pictorial representations of multiplication. • Use games to develop opportunities for authentic practice of multiplication computations. • looking for patterns in numbers, such as in a hundred chart, to further develop understanding of multiplication computation • Connect multiplication to skip-counting. • Connect multiplication to division and repeated addition. • Memorization of facts is not intended for this level. • fish drying on rack; sharing of food resources in First Peoples communities	Share the Treasure Groups Divide Into Equal Groups Fill the Jars Grouping in Twos Dividing Twos Grouping in Fives Dividing Fives Grouping in Tens Dividing Tens Grouping in Threes Dividing Threes Frog Jump Multiplication Frog Jump Division Grouping in Fours Dividing Fours Grouping in Sixes Dividing Sixes Grouping in Sevens Dividing Sevens Grouping in Eights Dividing Eights Grouping in Nines Dividing Nines Multiplication Arrays Arrays 2 Model multiplication to 5 x 5 Arrays 1

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Grade 3

Content	Elaborations	Activities
increasing and decreasing **patterns**	• creating patterns using concrete, pictorial, and numerical representations • representing increasing and decreasing patterns in multiple ways • generalizing what makes the pattern increase or decrease (e.g., doubling, adding 2)	Increasing Patterns Decreasing Patterns Pick the Next Number
pattern rules using words and numbers, based on concrete experiences	• from a concrete pattern, describing the pattern rule using words and numbers • predictability in song rhythm and patterns • Share examples of local First Peoples art with the class, and ask students to notice patterns in the artwork.	Describing Patterns
one-step addition and subtraction **equations** with an unknown number	• start unknown (e.g., n + 15 = 20 or ☐ + 15 = 20) • change unknown (e.g., 12 + n = 20 or 12 + ☐ = 20) • result unknown (e.g., 6 + 13 = n or 6 + 13 = ☐) • investigating even and odd numbers	Composing additions to 20 Missing Numbers Complements to 10, 20, 50 Missing Values Complements to 50 and 100 Odd or Even Odd and Even Numbers 1
measurement, using **standard units** (linear, mass, and capacity)	• linear measurements, using standard units (e.g., centimetre, metre, kilometre) • capacity measurements, using standard units (e.g., millilitre, litre) • Introduce concepts of perimeter, area, and circumference (the distance around); use of formula and pi to calculate not intended — the focus is on the concepts. • area measurement, using square units (standard and non-standard) • mass measurements, using standard units (e.g., gram, kilogram) • estimation of measurements, using standard referents (e.g., If this cup holds 100 millilitres, about how much does this jug hold?)	Metres and Kilometres Kilometre Conversions Perimeter of Shapes Bigger or smaller shape Equal Areas Area of Shapes Using a Litre Ordering Volumes (l) Litre Conversions Milliliters and Liters How Heavy? How Heavy is it? Ordering Mass (g) Kilogram Conversions
time concepts	• understanding concepts of time (e.g., second, minute, hour, day, week, month, year) • understanding the relationships between units of time • Telling time is not expected at this level. • estimating time, using environmental references and natural daily/seasonal cycles, temperatures based on weather systems, traditional calendar	Months of the Year Months After and Before 1st to 31st Days and Dates Time Conversions: Whole Numbers 1

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Grade 3

Content	Elaborations	Activities
construction of **3D objects**	• identifying 3D objects according to the 2D shapes of the faces and the number of edges and vertices (e.g., construction of nets, skeletons) • describing the attributes of 3D objects (e.g., faces, edges, vertices) • identifying 3D objects by their mathematical terms (e.g., sphere, cube, prism, cone, cylinder) • comparing 3D objects (e.g., How are rectangular prisms and cubes the same or different?) • understanding the preservation of shape (e.g., the orientation of a shape will not change its properties) • jingle dress bells, bentwood box, birch bark baskets, pithouses	Collect the Objects What Prism am I? What Pyramid am I? Prisms and Pyramids Faces, Edges, and Vertices 1 How Many Faces? How many Edges? How many corners? Faces, Edges and Vertices
one-to-one correspondence with bar graphs, pictographs, charts, and tables	• collecting data, creating a graph, and describing, comparing, and discussing the results • choosing a suitable representation	Picture Graphs: More or Less Picture Graphs: Single-Unit Scale Tallies Analysing data Interpreting Data Tables
likelihood of **simulated events**, using comparative language	• using comparative language (e.g., certain, uncertain; more, less, or equally likely) • developing an understanding of chance (e.g., tossing a coin creates a 50-50 chance of landing a head or tail; drawing from a bag, using spinners, and rolling dice all simulate probability events) • story: *The Snowsnake Game*	Chance Gauge Chance Dial Fair Games
financial literacy – fluency with coins and bills to 100 dollars, and earning and payment	• counting mixed combinations of coins and bills up to $100: o totalling up a set of coins and bills o using different combinations of coins and bills to make the same amount • understanding that payments can be made in flexible ways (e.g., cash, cheques, credit, electronic transactions, goods and services) • understanding that there are different ways of earning money to reach a financial goal (e.g., recycling, holding bake sales, selling items, walking a neighbour's dog) • Using pictures of First Peoples trade items (e.g., dentalium shells, dried fish, or tools when available) with the values indicated on the back, have students play a trading game.	Everyday Money

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Grade 4

Big Ideas

- Fractions and decimals are types of **numbers** that can represent quantities.
- Development of computational **fluency** and multiplicative thinking requires analysis of patterns and relations in multiplication and division.
- Regular changes in **patterns** can be identified and represented using tools and tables.
- Polygons are closed shapes with similar **attributes** that can be described, measured, and compared.
- Analyzing and interpreting experiments in **data** probability develops an understanding of chance.

Content	Elaborations	Activities
number concepts to 10 000	• counting: o multiples o flexible counting strategies o whole number benchmarks • Numbers to 10 000 can be arranged and recognized: o comparing and ordering numbers o estimating large quantities • place value: o 1000s, 100s, 10s, and 1s o understanding the relationship between digit places and their value, to 10 000	Going Up Going Down Before, After & Between to 100 Multiples Counting up in 4s Counting up in 6s Counting up in 7s Counting up in 8s Expanding Numbers Place Value - Thousands Place Value 3 Partition and Rename 2/ Understanding Place Value 2 (CAN) Which Is Greater? Which Is Less? Smallest and largest numbers Put in Order 1 Descending Order Missing Numbers 1 Missing Numbers 2 Greater Than or Less Than? Greater Than or Less Than 1 Nearest Thousand?
decimals to hundredths	• Fractions and decimals are numbers that represent an amount or quantity. • Fractions and decimals can represent parts of a region, set, or linear model. • Fractional parts and decimals are equal shares or equal-sized portions of a whole or unit. • understanding the relationship between fractions and decimals	Decimals from Words to Digits 1 Decimals on the Number Line

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Grade 4

Content	Elaborations	Activities
ordering and comparing **fractions**	• comparing and ordering of fractions with common denominators • estimating fractions with benchmarks (e.g., zero, half, whole) • using concrete and visual models • equal partitioning	Compare Fractions 1a Compare Fractions 1b Comparing Fractions 1 Compare Fractions 2
addition and subtraction to 10 000	• using flexible computation strategies, involving taking apart (e.g., decomposing using friendly numbers and compensating) and combining numbers in a variety of ways, regrouping • estimating sums and differences to 10 000 • using addition and subtraction in real-life contexts and problem-based situations • whole-class number talks	Add 3 Numbers: Bonds to Multiples of 10 Add 3 Numbers: Bonds to 100 Jump Add and Subtract Split Add and Subtract Bump Add and Subtract Compensation - Add Compensation - Subtract Magic Symbols 1 Partition Puzzles 2 Estimate Sums Estimate Differences Add Two 2-Digit Numbers Add Three 2-Digit Numbers Columns that Add Add 3-Digit Numbers Add Three 1-Digit Numbers Add Two 2-Digit Numbers: Regroup Add Three 2-Digit Numbers: Regroup Add 3-Digit Numbers: Regroup Add Multi-Digit Numbers 1 Add Three 3-Digit Numbers: Regroup Adding Colossal Columns Subtract Numbers 3-Digit Differences Subtract Numbers: Regroup 2-Digit Differences: Regroup 3-Digit Differences: 1 Regrouping 3-Digit Differences: 2 Regroupings 3-Digit Differences with Zeros Columns that Subtract Subtracting Colossal Columns

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Grade 4

Content	Elaborations	Activities
multiplication and division of two- or three-digit numbers by one-digit numbers	• understanding the relationships between multiplication and division, multiplication and addition, division and subtraction • using flexible computation strategies (e.g., decomposing, distributive principle, commutative principle, repeated addition and repeated subtraction) • using multiplication and division in real-life contexts and problem-based situations • whole-class number talks	Multiplication Properties Arithmetic Laws Multiply Multiples of 10 Multiply 3 single-digit numbers Grid Methods 1 Multiply: 1-Digit Number Multiply: 1-Digit Number, Regroup Halve it! Divide: 1-Digit Divisor 1 Divide: 1-Digit Divisor 2 Bar model × ÷ Problems: Times and Divide Multiply and Divide Problems 1
addition and subtraction of **decimals** to hundredths	• estimating decimal sums and differences • using visual models, such as base 10 blocks, place-value mats, grid paper, and number lines • using addition and subtraction in real-life contexts and problem-based situations • whole-class number talks	Decimal Complements Subtract Decimals 1 Magic Symbols 2
addition and subtraction facts to 20 (developing **computational fluency**)	• Provide opportunities for authentic practice, building on previous grade-level addition and subtraction facts. • flexible use of mental math strategies	Addition Facts All about Ten All about Twenty Fact Families: Add and Subtract Doubles and Halves to 10 Add 3 Numbers Using Bonds to 10 Doubles and Halves to 20 Related Facts 1 Problems: Addition and Subtraction

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Grade 4

Content	Elaborations	Activities
multiplication and division **facts** to 100 (introductory computational strategies)	• Provide opportunities for concrete and pictorial representations of multiplication. • building computational fluency • Use games to provide opportunities for authentic practice of multiplication computations. • looking for patterns in numbers, such as in a hundred chart, to further develop understanding of multiplication computation • Connect multiplication to skip-counting. • Connecting multiplication to division and repeated addition. • Memorization of facts is not intended for this level. • Students will become more fluent with these facts. • using mental math strategies, such as doubling or halving • Students should be able to recall the following multiplication facts by the end of Grade 4 (2s, 5s, 10s).	Groups Grouping in Twos Grouping in Fives Grouping in Tens Grouping in Threes Grouping in Fours Grouping in Sixes Grouping in Sevens Grouping in Eights Grouping in Nines Multiplication Problems 1 Divide Into Equal Groups Dividing Twos Dividing Fives Dividing Tens Dividing Threes Dividing Fours Dividing Sixes Dividing Sevens Dividing Eights Dividing Nines Multiplication Arrays Arrays 2 Model multiplication to 5 × 5 Arrays 1 Frog Jump Multiplication Frog Jump Division Times Tables Multiplication Grids Multiplication Turn-Abouts Related Facts 2 Fact Families: Multiply and Divide Missing Numbers: × and ÷ facts
increasing and decreasing **patterns**, using tables and charts	• Change in patterns can be represented in charts, graphs, and tables. • using words and numbers to describe increasing and decreasing patterns • fish stocks in lakes, life expectancies	Skip Counting Counting on a 100 grid Describing Patterns

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Grade 4

Content	Elaborations	Activities
algebraic relationships among quantities	• representing and explaining one-step equations with an unknown number • describing pattern rules, using words and numbers from concrete and pictorial representations • planning a camping or hiking trip; planning for quantities and materials needed per individual and group over time	Composing Numbers to 20 Composing additions to 20
one-step equations with an unknown number, using all operations	• one-step equations for all operations involving an unknown number (e.g., __+ 4 = 15, 15 – ☐ = 11) • start unknown (e.g., ***n*** + 15 = 20; 20 – 15 = ☐) • change unknown (e.g., 12 + ***n*** = 20) • result unknown (e.g., 6 + 13 = __)	Missing Numbers Missing Values Find the Missing Number 1
how to **tell time** with analog and digital clocks, using 12- and 24-hour clocks	• understanding how to tell time with analog and digital clocks, using 12- and 24-hour clocks • understanding the concept of a.m. and p.m. • understanding the number of minutes in an hour • understanding the concepts of using a circle and of using fractions in telling time (e.g., half past, quarter to) • telling time in five-minute intervals • telling time to the nearest minute • First Peoples use of numbers in time and seasons, represented by seasonal cycles and moon cycles (e.g., how position of sun, moon, and stars is used to determine times for traditional activities, navigation)	Tell Time to the Hour (UK) Hour Times Tell Time to the Hour Tell Time to the Half Hour (UK) Half Hour Times Tell Time to the Half Hour Quarter To and Quarter Past Five Minute Times What is the Time? 24 Hour Time
regular and irregular **polygons**	• describing and sorting regular and irregular polygons based on multiple attributes • investigating polygons (polygons are closed shapes with similar attributes) • Yup'ik border patterns	Collect the Polygons
perimeter of regular and irregular shapes	• using geoboards and grids to create, represent, measure, and calculate perimeter	Measuring Length Perimeter of Shapes Perimeter: Squares and Rectangles Perimeter: Triangles 2 Perimeter: Triangles 1
line symmetry	• using concrete materials such as pattern blocks to create designs that have a mirror image within them • First Peoples art, borders, birchbark biting, canoe building • Visit a structure designed by First Peoples in the local community and have the students examine the symmetry, balance, and patterns within the structure, then replicate simple models of the architecture focusing on the patterns they noted in the original.	Symmetry Symmetry or Not?

British Columbia Curriculum

Alignment with Mathletics

Grade 4

Content	Elaborations	Activities
one-to-one correspondence and many-to-one correspondence, using bar graphs and pictographs	• many-to-one correspondence: one symbol represents a group or value (e.g., on a bar graph, one square may represent five cookies)	Picture Graphs: More or Less Picture Graphs: Single-Unit Scale Picture Graphs: with scale & half symbols Pictographs Making Picture Graphs: With Scale Tallies Analysing data Bar Graphs 1 Bar Graphs 2
probability experiments	• predicting single outcomes (e.g., when you spin using one spinner and it lands on a single colour) • using spinners, rolling dice, pulling objects out of a bag • recording results using tallies • Dene/Kaska hand games, Lahal stick games	Fair Games
financial literacy – monetary calculations, including making change with amounts to 100 dollars and making simple financial decisions	• making monetary calculations, including decimal notation in real-life contexts and problem-based situations • applying a variety of strategies, such as counting up, counting back, and decomposing, to calculate totals and make change • making simple financial decisions involving earning, spending, saving, and giving • equitable trade rules	Everyday Money How much Change? Who's got the Money? Money Money Problems: Four Operations

British Columbia Curriculum

Alignment with Mathletics

Grade 5

Big Ideas
• **Numbers** describe quantities that can be represented by equivalent fractions. • Computational **fluency** and flexibility with numbers extend to operations with larger (multi-digit) numbers. • Identified regularities in number **patterns** can be expressed in tables. • Closed shapes have **area and perimeter** that can be described, measured, and compared. • **Data** represented in graphs can be used to show many-to-one correspondence.

Content	Elaborations	Activities
number concepts to 1 000 000	• counting: o multiples o flexible counting strategies o whole number benchmarks • Numbers to 1 000 000 can be arranged and recognized: o comparing and ordering numbers o estimating large quantities • place value: o 100 000s, 10 000s, 1000s, 100s, 10s, and 1s o understanding the relationship between digit places and their value, to 1 000 000 • First Peoples use unique counting systems (e.g., Tsimshian use of three counting systems, for animals, people and things; Tlingit counting for the naming of numbers e.g., 10 = two hands, 20 = one person)	Increasing Patterns Decreasing Patterns Multiples Numbers in Words Understanding Place Value 3 Rounding Numbers Place Value to Millions Numbers from Words to Digits 1
decimals to thousandths	Under Review	Decimals from Words to Digits 2 Decimals to Fractions 1 Decimals to Fractions 2
equivalent fractions	Under Review	Equivalent Fractions on a Number Line 1 Equivalent Fractions on a Number Line 2 Equivalent Fraction Wall 1 Equivalent Fraction Wall 2 The Equivalent Fraction Selecting Equivalent Fractions Simplify Fractions
whole-number, fraction, and decimal **benchmarks**	• Two equivalent fractions are two ways to represent the same amount (having the same whole). • comparing and ordering of fractions and decimals • addition and subtraction of decimals to thousandths • estimating decimal sums and differences • estimating fractions with benchmarks (e.g., zero, half, whole) • equal partitioning	Comparing Fractions 2 Arranging Fractions Compare Fractions 1a Compare Fractions 1b Compare Fractions 2 Comparing Fractions 1 Decimals on a Number Line Comparing Decimals 1 Comparing Decimals Decimal Order Decimal Order 1 Nearest Whole Number

British Columbia Curriculum

Alignment with Mathletics

Grade 5

Content	Elaborations	Activities
addition and subtraction of **whole numbers** to 1 000 000	• using flexible computation strategies involving taking apart (e.g., decomposing using friendly numbers and compensating) and combining numbers in a variety of ways, regrouping • estimating sums and differences to 10 000 • using addition and subtraction in real-life contexts and problem-based situations • whole-class number talks	Add 3 Numbers: Bonds to Multiples of 10 Add 3 Numbers: Bonds to 100 Jump Add and Subtract Split Add and Subtract Bump Add and Subtract Compensation - Add Compensation - Subtract Magic Symbols 1 Partition Puzzles 2 Estimate Sums Estimate Differences Estimation: Add and Subtract Add Multi-Digit Numbers 1 Adding Colossal Columns Add Multi-Digit Numbers 2 Subtracting Colossal Columns Column Subtraction
multiplication and division to three digits, including division with remainders	• understanding the relationships between multiplication and division, multiplication and addition, and division and subtraction • using flexible computation strategies (e.g., decomposing, distributive principle, commutative principle, repeated addition, repeated subtraction) • using multiplication and division in real-life contexts and problem-based situations • whole-class number talks	Multiplication Properties Arithmetic Laws Multiply Multiples of 10 Multiply 3 single-digit numbers Grid Methods 1 Multiply: 1-Digit Number Multiply: 1-Digit Number, Regroup Halve it! Divide: 1-Digit Divisor 1 Divide: 1-Digit Divisor 2 Remainders by Arrays Remainders by Tables Divide: 1-Digit Divisor, Remainder Estimate Quotients Bar model × ÷ Problems: Times and Divide Multiply and Divide Problems 1 Estimation: Multiply and Divide Multiply More Multiples of 10 Mental Methods Multiplication 1 Grid Methods 2 Grid Methods 3 Multiply 2 Digits Area Model Long Multiplication Estimate Products Mental Methods Division Mental Methods Division 1

British Columbia Curriculum

Alignment with Mathletics

Grade 5

Content	Elaborations	Activities
addition and subtraction of **decimals** to thousandths	• estimating decimal sums and differences • using visual models such as base 10 blocks, place-value mats, grid paper, and number lines • using addition and subtraction in real-life contexts and problem-based situations • whole-class number talks	Adding Decimals Add Decimals 2 Subtract Decimals 2 Adding and Subtracting Decimals Decimal Complements Estimate Decimal Sums 1 Estimate Decimal Differences 1
addition and subtraction facts to 20 (extending computational fluency)	• Provide opportunities for authentic practice, building on previous grade-level addition and subtraction facts. • applying strategies and knowledge of addition and subtraction facts in real-life contexts and problem-based situations, as well as when making math-to-math connections (e.g., for 800 + 700, you can annex the zeros and use the knowledge of 8 + 7 to find the total)	Addition Facts All about Ten All about Twenty Fact Families: Add and Subtract Doubles and Halves to 10 Add 3 Numbers Using Bonds to 10 Doubles and Halves to 20 Related Facts 1 Problems: Addition and Subtraction
multiplication and division **facts to 100** (emerging computational fluency)	• Provide opportunities for concrete and pictorial representations of multiplication. • Use games to provide opportunities for authentic practice of multiplication computations. • looking for patterns in numbers, such as in a hundred chart, to further develop understanding of multiplication computation • Connect multiplication to skip-counting. • Connect multiplication to division and repeated addition. • Memorization of facts is not intended this level. • Students will become more fluent with these facts. • using mental math strategies such as doubling and halving, annexing, and distributive property • Students should be able to recall many multiplication facts by the end of Grade 5 (e.g., 2s, 3s, 4s, 5s, 10s). • developing computational fluency with facts to 100	Multiplication Arrays Arrays 2 Model multiplication to 5 × 5 Arrays 1 Frog Jump Multiplication Frog Jump Division Times Tables Multiplication Grids Multiplication Turn-Abouts Related Facts 2 Fact Families: Multiply and Divide Missing Numbers: × and ÷ facts
rules for increasing and decreasing patterns with words, numbers, symbols, and variables	Under Review	Describing Patterns Number Sequences Up to 1 Million Table of Values
one-step equations with variables	• solving one-step equations with a variable • expressing a given problem as an equation, using symbols (e.g., $4 + x = 15$)	Missing Numbers: Variables Solve Equations: Multiply, Divide 1 Write an Equation: Word Problems

British Columbia Curriculum

Alignment with Mathletics

Grade 5

Content	Elaborations	Activities
area measurement of squares and rectangles	Under Review	Bigger or smaller shape Equal Areas Area of Shapes Area: Squares and Rectangles
relationships between **area and perimeter**	• measuring area of squares and rectangles, using tiles, geoboards, grid paper • investigating perimeter and area and how they are related to but not dependent on each other • use traditional dwellings • Invite a local Elder or knowledge keeper to talk about traditional measuring and estimating techniques for hunting, fishing, and building.	Under Review
duration, using measurement of **time**	• understanding elapsed time and duration • applying concepts of time in real-life contexts and problem-based situations • daily and seasonal cycles, moon cycles, tides, journeys, events	Time Conversions: Whole Numbers 1 Time Conversions: Whole Numbers 2 Time Conversions: Simple Fractions Time Conversions: Simple Decimals What Time Will it Be? Time Mentals Elapsed Time Using Timetables Time Zones
classification of prisms and pyramids	• investigating 3D objects and 2D shapes, based on multiple attributes • describing and sorting quadrilaterals • describing and constructing rectangular and triangular prisms • identifying prisms in the environment	Collect the Objects What Pyramid am I? Prisms and Pyramids Naming 3D Objects Collect the Shapes 2 Collect More Shapes
single **transformations**	• single transformations (slide/translation, flip/reflection, turn/rotation) • using concrete materials with a focus on the motion of transformations • weaving, cedar baskets, designs	Flip, Slide, Turn
one-to-one correspondence and **many-to-one correspondence**, using double bar graphs	• many-to-one correspondence: one symbol represents a group or value (e.g., on a bar graph, one square may represent five cookies)	Picture Graphs: More or Less Picture Graphs: Single-Unit Scale Picture Graphs: with scale & half symbols Pictographs Making Picture Graphs: With Scale Analysing data Bar Graphs 1 Bar Graphs 2

British Columbia Curriculum

Alignment with Mathletics

Grade 5

Content	Elaborations	Activities
probability experiments, single events or outcomes	• predicting outcomes of independent events (e.g., when you spin using a spinner and it lands on a single colour) • predicting single outcomes (e.g., when you spin using a spinner and it lands on a single colour) • using spinners, rolling dice, pulling objects out of a bag • representing single outcome probabilities using fractions	Possible Outcomes Counting Techniques 1 Introductory probability Find the Probability
financial literacy – monetary calculations, including making change with amounts to 1000 dollars and developing simple financial plans	• making monetary calculations, including making change and decimal notation to $1000 in real-life contexts and problem-based situations • applying a variety of strategies, such as counting up, counting back, and decomposing, to calculate totals and make change • making simple financial plans to meet a financial goal • developing a budget that takes into account income and expenses	Budgeting Money Problems: Four Operations

British Columbia Curriculum

Alignment with Mathletics

Grade 6

Big Ideas

- Mixed **numbers** and decimal numbers represent quantities that can be decomposed into parts and wholes.
- Computational **fluency** and flexibility with numbers extend to operations with whole numbers and decimals.
- **Linear relations** can be identified and represented using expressions with variables and line graphs and can be used to form generalizations.
- **Properties** of objects and shapes can be described, measured, and compared using volume, area, perimeter, and angles.
- **Data** from the results of an experiment can be used to predict the theoretical probability of an event and to compare and interpret.

Content	Elaborations	Activities
small to large numbers (thousandths to billions)	• place value from thousandths to billions, operations with thousandths to billions • numbers used in science, medicine, technology, and media • compare, order, estimate	Place Value to Billions Numbers from Words to Digits 2 Numbers from Words to Digits 3 Comparing Numbers Equal, Less or Greater than? Rounding Numbers Decimals from Words to Digits 1 Decimal Place Value Decimals to Fractions 1 Comparing Decimals Decimal Order Decimal Order 1 Nearest Whole Number Rounding Decimals 1
multiplication and division **facts to 100** (developing computational fluency)	• mental math strategies (e.g., the double-double strategy to multiply 23 × 4)	Times Tables Multiplication Grids Multiplication Turn-Abouts Related Facts 2 Fact Families: Multiply and Divide Missing Numbers: × and ÷ facts
order of operations with whole numbers	• includes the use of brackets, but excludes exponents • quotients can be rational numbers	Order of Operations 1 (BEDMAS) Word Problems with Letters
factors and multiples — greatest common factor and least common multiple	• prime and composite numbers, divisibility rules, factor trees, prime factor phrase (e.g., $300 = 2^2 \times 3 \times 5^2$) • using graphic organizers (e.g., Venn diagrams) to compare numbers for common factors and common multiples	Multiples Least Common Multiple Venn Diagram 1 Factors Find the Factor Greatest Common Factor Fit the Conditions 1 Prime or Composite? Product of Prime Factors Prime Factoring

British Columbia Curriculum

Alignment with Mathletics

Grade 6

Content	Elaborations	Activities
improper fractions and mixed numbers	• using benchmarks, number line, and common denominators to compare and order, including whole numbers • using pattern blocks, Cuisenaire Rods, fraction strips, fraction circles, grids • birchbark biting	What fraction is Shaded 1 What Mixed Number Is Shaded? Identifying Fractions on a Number Line Identifying Fractions Beyond 1 Mixed and Improper Fractions on a Number Line Make Fair Shares Improper Fraction to Mixed Numeral Mixed to Improper Fractions Converting Mixed and Improper Compare Fractions 2 Comparing Fractions 1 Arranging Fractions
introduction to **ratios**	• comparing numbers, comparing quantities, equivalent ratios • part-to-part ratios and part-to-whole ratios	Simplify Ratios: 2 Whole numbers Equivalent Ratios Word Problems: Ratio Ratio Word Problems
whole-number **percents** and percentage discounts	• using base 10 blocks, geoboard, 10×10 grid to represent whole number percents • finding missing part (whole or percentage) • 50% = $\frac{1}{2}$ = 0.5 = 50:100	Modelling Percentages Percents to Fractions Percentages to Fractions (with and without simplification) Fractions to Percentages (Non-Calculator) Percents and Decimals Match Decimals and Percentages Mixed decimal, percentage and fraction conversions Percent of a Number (Mental)
multiplication and division of **decimals**	• 0.125 × 3 or 7.2 ÷ 9 • using base 10 block array • birchbark biting	Multiply Decimals: 10, 100, 1000 Divide Decimals: 10, 100, 1000 Multiply Decimals and Powers of 10 Divide Decimals by Powers of 10 100 1000 Multiply Decimal by Whole Number Multiply Decimals: Area Model Multiply Decimals 1 Divide Decimal by Whole Number Estimate Decimal Operations
increasing and decreasing **patterns**, using expressions, tables, and graphs as functional relationships	• limited to discrete points in the first quadrant • visual patterning (e.g., colour tiles) • Take 3 add 2 each time, $2n + 1$, and 1 more than twice a number all describe the pattern 3, 5, 7, ... • graphing data on First Peoples language loss, effects of language intervention	Describing Patterns Table of Values Increasing Patterns Decreasing Patterns Count Backward Patterns Pattern Rules and Tables
one-step equations with whole-number coefficients and solutions	• preservation of equality (e.g., using a balance, algebra tiles) • $3x = 12$, $x + 5 = 11$	Missing Numbers: Variables Solve Equations: Multiply, Divide 1 Write an Equation: Word Problems

British Columbia Curriculum

Alignment with Mathletics

Grade 6

Content	Elaborations	Activities
perimeter of complex shapes	• A complex shape is a group of shapes with no holes (e.g., use colour tiles, pattern blocks, tangrams).	Perimeter Detectives 1 Perimeter Detectives 2 Perimeter: Triangles 1
area of triangles, parallelograms, and trapezoids	• grid paper explorations • deriving formulas • making connections between area of parallelogram and area of rectangle • birchbark biting	Area: Triangles Area: Parallelograms (Metric)
angle measurement and classification	• straight, acute, right, obtuse, reflex • constructing and identifying; include examples from local environment • estimating using 45°, 90°, and 180° as reference angles • angles of polygons • Small Number stories: *Small Number and the Skateboard Park*	Equal Angles Comparing Angles Right Angle Relation What Type of Angle 2? Classifying Angles Measuring Angles Estimating Angles
volume and capacity	• using cubes to build 3D objects and determine their volume • referents and relationships between units (e.g., cm^3, m^3, mL, L) • the number of coffee mugs that hold a litre • berry baskets, seaweed drying	Volume of Solids and Prisms - 1 cm^3 blocks How many Blocks? Capacity Word Problems
triangles	• scalene, isosceles, equilateral • right, acute, obtuse • classified regardless of orientation	Triangles: Acute, Right, Obtuse Triangle - Tasters
combinations of **transformations**	• plotting points on Cartesian plane using whole-number ordered pairs • translation(s), rotation(s), and/or reflection(s) on a single 2D shape • limited to first quadrant • transforming, drawing, and describing image • Use shapes in First Peoples art to integrate printmaking (e.g., Inuit, Northwest coastal First Nations, frieze work)	Transformations Coordinate Graphs: 1st Quadrant
line graphs	• table of values, data set; creating and interpreting a line graph from a given set of data	Line Graphs: Reading Graphing from a Table of Values
single-outcome probability, both theoretical and experimental	• single-outcome probability events (e.g., spin a spinner, roll a die, toss a coin) • listing all possible outcomes to determine theoretical probability • comparing experimental results with theoretical expectation • Lahal stick games	Possible Outcomes Counting Techniques 1 Introductory probability Find the Probability
financial literacy – simple budgeting and consumer math	• informed decision making on saving and purchasing • How many weeks of allowance will it take to buy a bicycle?	Budgeting Money Problems: Four Operations

British Columbia Curriculum

Alignment with Mathletics

Grade 7

Big Ideas

- Decimals, fractions, and percents are used to represent and describe parts and wholes of **numbers**.
- **Computational fluency** and flexibility with numbers extend to operations with integers and decimals.
- **Linear relations** can be represented in many connected ways to identify regularities and make generalizations.
- The constant ratio between the circumference and diameter of circles can be used to describe, measure, and compare **spatial relationships**.
- **Data** from circle graphs can be used to illustrate proportion and to compare and interpret.

Content	Elaborations	Activities
multiplication and division **facts to 100** (extending computational fluency	• When multiplying 214 by 5, we can multiply by 10, then divide by 2 to get 1070.	Times Tables Missing Numbers: × and ÷ facts Multiplying by 10, 100, 1000 Dividing by 10, 100, 1000 Multiply Multiples of 10 Multiply More Multiples of 10 Multiply 3 single-digit numbers Arithmetic Laws Estimate Products Mental Methods Multiplication 1 Mental Methods Multiplication 2 Mental Methods Multiplication 3 Multiply 2 Digits Area Model Estimate Quotients Mental Methods Division Mental Methods Division 1 Mental Methods Division 2 Mental Methods Division 3
operations with integers (addition, subtraction, multiplication, division, and order of operations)	• addition, subtraction, multiplication, division, and order of operations • concretely, pictorially, symbolically • order of operations includes the use of brackets, excludes exponents • using two-sided counters • 9 – (–4) = 13 because –4 is 13 away from +9 • extending whole-number strategies to decimals	Integers on a Number Line Ordering Integers (Number Line) Comparing Integers Negative or Positive? Integers: Add and Subtract More with Integers Add Integers Integers: Subtraction Adding Integers: Positive, Negative or Zero Integers: Multiplication and Division Multiplying and Dividing Integers Order of Operations 1 (BEDMAS) Integers: Order of Operations (BEDMAS) Identifying Errors in Applying the Order of Operations

British Columbia Curriculum

Alignment with Mathletics

Grade 7

Content	Elaborations	Activities
operations with decimals (addition, subtraction, multiplication, division, and order of operations	• includes the use of brackets, but excludes exponents	Adding Decimals Subtract Decimals 2 Adding and Subtracting Decimals Decimal Complements Multiply Decimals: 10, 100, 1000 Multiply Decimal by Whole Number Multiply Decimals: Area Model Decimal by Decimal Multiply Decimals 1 Divide Decimal by Whole Number Divide Decimal by Decimal Estimate Decimal Sums 1 Estimate Decimal Differences 1 Estimate Decimal Operations
relationships between decimals, fractions, ratios, and percents	• conversions, equivalency, and terminating versus repeating decimals, place value, and benchmarks • comparing and ordering decimals and fractions using the number line • $\frac{1}{2}$ = 0.5 = 50% = 50:100 • shoreline cleanup	Decimals to Fractions 2 Fractions to Decimals Fractions to Decimals 2 Fraction to Terminating Decimal Modelling Percentages Percentages to Fractions (with and without simplification) Common Fractions as Percentages Fractions to Percentages (Non-Calculator) Fractions to Percentages (Calculator) Mixed decimal, percentage and fraction conversions Match Decimals and Percentages Calculating Percentages (Mental) Percentage of an amount using Fractions (<100%) Percentage of an amount using Decimals (calculator) Quantities to Percentages (no units) Quantities to Percentages (with units) What percentage? Complementary Percentages
discrete linear relations, using expressions, tables, and graphs	• four quadrants, limited to integral coordinates • $3n + 2$; values increase by 3 starting from y- intercept of 2 • deriving relation from the graph or table of values • Small Number stories: *Small Number and the Old Canoe, Small Number Counts to 100*	Table of Values Graphing from a Table of Values Reading Values from a Line

British Columbia Curriculum

Alignment with Mathletics

Grade 7

Content	Elaborations	Activities
two-step equations with whole-number coefficients, constants, and solutions	• solving and verifying $3x + 4 = 16$ • modelling the preservation of equality (e.g., using balance, pictorial representation, algebra tiles) • spirit canoe trip pre-planning and calculations • Small Number stories: *Small Number and the Big Tree*	I am Thinking of a Number!
circumference and area of circles	• constructing circles given radius, diameter, area, or circumference • finding relationships between radius, diameter, circumference, and area to develop $C = \pi \times d$ formula • applying $A = \pi \times r \times r$ formula to find the area given radius or diameter • drummaking, dreamcatcher making, stories of SpiderWoman (Dene, Cree, Hopi, Tsimshian), basket making, quill box making (Note: Local protocols should be considered when choosing an activity.)	Labelling Circles Calculate circumference of circles Area: Circles 1 Area: Annulus
volume of rectangular prisms and cylinders	• volume = area of base x height • bentwood boxes, wiigwaasabak and mide-wiigwaas (birch bark scrolls) • *Exploring Math through Haida Legends: Culturally Responsive Mathematics*	Volume: Rectangular Prisms 1 Volume: Cylinders
Cartesian coordinates and graphing	• origin, four quadrants, integral coordinates, connections to linear relations, transformations • overlaying coordinate plane on medicine wheel, beading on dreamcatcher, overlaying coordinate plane on traditional maps	Number Plane Coordinate Graphs
combinations of **transformations**	• four quadrants, integral coordinates • translation(s), rotation(s), and/or reflection(s) on a single 2D shape; combination of successive transformations of 2D shapes; tessellations • First Peoples art, jewelry making, birchbark biting	Transformations Transformations: Coordinate Plane Horizontal and Vertical Change Rotations: Coordinate Plane
circle graphs	• constructing, labelling, and interpreting circle graphs • translating percentages displayed in a circle graph into quantities and vice versa • visual representations of tidepools or traditional meals on plates	Sector Graphs Sector Graph Angles Creating a Sector Graph
experimental probability with two independent events	• experimental probability, multiple trials (e.g., toss two coins, roll two dice, spin a spinner twice, or a combination thereof) • dice games	Relative Frequency Complementary Events Fair Games Dice and Coins
financial literacy — financial percentage	• financial percentage calculations • sales tax, tips, discount, sale price	Percentage Change: Increase and Decrease GST Profit and Loss

British Columbia Curriculum

Alignment with Mathletics

Grade 8

Big Ideas

- **Number** represents, describes, and compares the quantities of ratios, rates, and percents.
- Computational **fluency** and flexibility extend to operations with fractions.
- **Discrete linear relationships** can be represented in many connected ways and used to identify and make generalizations.
- The relationship between surface area and volume of **3D objects** can be used to describe, measure, and compare spatial relationships.
- Analyzing **data** by determining averages is one way to make sense of large data sets and enables us to compare and interpret

Content	Elaborations	Activities
perfect squares and cubes	• using colour tiles, pictures, or multi-link cubes • building the number or using prime factorization	Square Roots Square Roots 1 Estimating Square Roots Estimating Cube Roots Prime Factoring Square and Cube Roots
square and cube roots	• finding the cube root of 125 • finding the square root of $\frac{16}{169}$ • estimating the square root of 30	
percents less than 1 and greater than 100 (decimal and fractional percents)	• A worker's salary increased 122% in three years. If her salary is now $93,940, what was it originally? • What is $\frac{1}{2}$% of 1 billion? • The population of Vancouver increased by 3.25%. What is the population if it was approximately 603,500 people last year? • beading	Percentages greater than 100% to Mixed Numerals Percentages to Decimals Mixed numerals to Percentages greater than 100% Decimals to percentages Decimal to Percentage Percentage of a Quantity What percentage? Percentage Word Problems Complementary Percentages Percentage Change: Increase and Decrease

British Columbia Curriculum

Alignment with Mathletics

Grade 8

Content	Elaborations	Activities
numerical **proportional reasoning** (rates, ratio, proportions, and percent)	• two-term and three-term ratios, real-life examples and problems • A string is cut into three pieces whose lengths form a ratio of 3:5:7. If the string was 105 cm long, how long are the pieces? • creating a cedar drum box of proportions that use ratios to create differences in pitch and tone • paddle making	Simplify Ratios: 2 Whole numbers Simplify Ratios: 3 Whole Numbers Simplify Ratios: Fractions Simplify Ratios: Mixed Numbers Simplify Ratios: Decimals Equivalent Ratios Ratio Word Problems: Ratio Dividing a Quantity into a Ratio Ratio Word Problems Scale Measurement Floor Plans Unitary Method Rates Word Problems Distance Travelled Average Speed Time Taken Travel Graphs Rates Calculations Converting Rates Wages and Salaries Working Overtime Commission Piecework and Royalties
operations with **fractions** (addition, subtraction, multiplication, division, and order of operations)	• includes the use of brackets, but excludes exponents • using pattern blocks or Cuisenaire Rods • simplifying $\frac{1}{2} \div \frac{9}{6} \times \left(7 - \frac{4}{5}\right)$ • drumming and song: $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$, whole notes, dot bars, rests = one beat • changing tempos of traditional songs dependent on context of use • proportional sharing of harvests based on family size	Add: Common Denominator Add: No Common Denominator Add Like Mixed Numbers Add Unlike Mixed Numbers Subtract: Common Denominator Subtract: No Common Denominator One Take Fraction Subtract Like Mixed Numbers Subtract Unlike Mixed Numbers Mixed Numerals Unit Fractions Fraction of an Amount Multiply Fraction by Whole Number Multiply Fraction by Fraction Multiply Two Fractions 1 Multiplying Fractions Multiply Mixed Numbers Estimate Products with Fractions Fraction Word Problems More Fraction Problems Using Reciprocals Divide by a Unit Fraction Divide Whole Number by Fraction Divide Fractions Visual Model Divide Fractions by Fractions 1 Dividing Fractions Divide Mixed Numbers

British Columbia Curriculum

Alignment with Mathletics

Grade 8

Content	Elaborations	Activities
discrete linear relations (extended to larger numbers, limited to integers)	• two-variable discrete linear relations • expressions, table of values, and graphs • scale values (e.g., tick marks on axis represent 5 units instead of 1) • four quadrants, integral coordinates	Pattern Rules and Tables Find the Pattern Rule Coordinate Graphs Graphing from a Table of Values Reading Values from a Line Determining a Rule for a Line
expressions- writing and evaluating using substitution	• using an expression to describe a relationship • evaluating $0.5n - 3n + 25$ if $n = 14$	Writing Algebraic Expressions Algebra Tiles Recognising Like Terms Like Terms: Add, Subtract Like Terms: Add and Subtract Algebraic Multiplication Algebraic Division Simple Substitution Complex Substitution
two-step equations with integer coefficients, constants, and solutions	• solving and verifying $3x - 4 = -12$ • modelling the preservation of equality (e.g., using a balance, manipulatives, algebra tiles, diagrams) • spirit canoe journey calculations	Solve Equations: Multiply, Divide 2 Solving Simple Equations Solve Two-Step Equations
surface area and volume of regular solids, including triangular and other right prisms and cylinders	• exploring strategies to determine the surface area and volume of a regular solid using objects, a net, 3D design software • volume = area of the base × height • surface area = sum of the areas of each side	Nets Surface Area: Rectangular Prisms Surface Area: Triangular Prisms 1 Surface Area: Triangular Prisms Surface Area: Cylinders Volume: Rectangular Prisms 1 Volume of Triangular prisms Volume: Cylinders
Pythagorean theorem	• modelling the Pythagorean theorem • finding a missing side of a right triangle • deriving the Pythagorean theorem • constructing canoe paths and landings given current on a river • First Peoples constellations	Hypotenuse of a Right Triangle Pythagoras: Find a Short Side (integers only) Pythagoras: Find a short side (rounding needed) Pythagoras: Find a Short Side (decimal values) Pythagorean Theorem Pythagoras and Perimeter Pythagorean Triads

British Columbia Curriculum
Alignment with Mathletics

Grade 8

Content	Elaborations	Activities
construction, views, and nets of **3D objects**	• top, front, and side views of 3D objects • matching a given net to the 3D object it represents • drawing and interpreting top, front, and side views of 3D objects • constructing 3D objects with nets • using design software to create 3D objects from nets • bentwood boxes, lidded baskets, packs	Teacher directed
central tendency	• mean, median, and mode	Mode Mean The Median Median Mode from Frequency Table Mean from Frequency Table Median from Frequency Table Which Measure of Central Tendency?
two-step equations with integer coefficients, constants, and solutions	• solving and verifying $3x - 4 = -12$ • modelling the preservation of equality (e.g., using a balance, manipulatives, algebra tiles, diagrams) • spirit canoe journey calculations	Solve Equations: Multiply, Divide 2 Solving Simple Equations Solve Two-Step Equations
surface area and volume of regular solids, including triangular and other right prisms and cylinders	• exploring strategies to determine the surface area and volume of a regular solid using objects, a net, 3D design software • volume = area of the base × height • surface area = sum of the areas of each side	Nets Surface Area: Rectangular Prisms Surface Area: Triangular Prisms 1 Surface Area: Triangular Prisms Surface Area: Cylinders Volume: Rectangular Prisms 1 Volume of Triangular prisms Volume: Cylinders
Pythagorean theorem	• modelling the Pythagorean theorem • finding a missing side of a right triangle • deriving the Pythagorean theorem • constructing canoe paths and landings given current on a river • First Peoples constellations	Hypotenuse of a Right Triangle Pythagoras: Find a Short Side (integers only) Pythagoras: Find a short side (rounding needed) Pythagoras: Find a Short Side (decimal values) Pythagorean Theorem Pythagoras and Perimeter Pythagorean Triads

British Columbia Curriculum

Alignment with Mathletics

Grade 8

Content	Elaborations	Activities
construction, views, and nets of **3D objects**	• top, front, and side views of 3D objects • matching a given net to the 3D object it represents • drawing and interpreting top, front, and side views of 3D objects • constructing 3D objects with nets • using design software to create 3D objects from nets • bentwood boxes, lidded baskets, packs	Teacher directed
central tendency	• mean, median, and mode	Mode Mean The Median Median Mode from Frequency Table Mean from Frequency Table Median from Frequency Table Which Measure of Central Tendency?
theoretical probability with two independent events	• with two independent events: sample space (e.g., using tree diagram, table, graphic organizer) • rolling a 5 on a fair die and flipping a head on a fair coin is $\frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$ • deciding whether a spinner in a game is fair	Dice and Coins Probability Tables Probability With Replacement Venn Diagrams
financial literacy — best buys	• coupons, proportions, unit price, products and services • proportional reasoning strategies (e.g., unit rate, equivalent fractions given prices and quantities)	Best Buy

British Columbia Curriculum

Alignment with Mathletics

Grade 9

Big Ideas

- The principles and processes underlying operations with **numbers** apply equally to algebraic situations and can be described and analyzed.
- Computational **fluency** and flexibility with numbers extend to operations with rational numbers.
- **Continuous linear relationships** can be identified and represented in many connected ways to identify regularities and make generalizations.
- Similar shapes have **proportional relationships** that can be described, measured, and compared.
- Analyzing the validity, reliability, and representation of **data** enables us to compare and interpret.

Content	Elaborations	Activities
operations with rational numbers (addition, subtraction, multiplication, division, and order of operations)	• includes brackets and exponents • simplifying $\left(-\frac{3}{4}\right) \div \frac{1}{5} + \left(\left(-\frac{1}{3}\right) \times \left(-\frac{5}{2}\right)\right)$ • simplifying $1 - 2\left(\frac{4}{5}\right)^2$ • paddle making	Add: Common Denominator Add: No Common Denominator No Common Denominator Common Denominator Add Like Mixed Numbers Add Unlike Mixed Numbers Subtract: Common Denominator Subtract: No Common Denominator One Take Fraction Subtract Like Mixed Numbers Subtract Unlike Mixed Numbers Mixed Numerals Add Mixed Numbers: Same Sign Subtract Mixed Numbers: Signs Differ Unit Fractions Fraction of an Amount Multiply Fraction by Whole Number Multiply Two Fractions 1 Multiplying Fractions Multiply Mixed Numbers Operations with Fractions Divide Mixed Numbers with Signs Estimate Products with Fractions Fraction Word Problems More Fraction Problems Order of Operations 1 (BEDMAS) Exponent form to numbers Order of Operations 2 (PEDMAS) Identifying Errors in Applying the Order of Operations Integers: Order of Operations (BEDMAS) Integers: Operations Order

British Columbia Curriculum

Alignment with Mathletics

Grade 9

Content	Elaborations	Activities
exponents and exponent laws with whole-number exponents	• includes variable bases • $2^7 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 128$; $n^4 = n \times n \times n \times n$ • exponent laws (e.g., $6^0 = 1$; $m^1 = m$; $n^5 \times n^3 = n^8$; $\frac{y^7}{y^3} = y^4$; $(5n)^3 = 5^3 \times n^3 = 125n^3$; $\left(\frac{m}{n}\right)^5 = \frac{m^5}{n^5}$; and $(3^2)^4 = 3^8$) • limited to whole-number exponents and whole-number exponent outcomes when simplified • (-3^2) does not equal -3^2 • $3x(x - 4) = 3x^2 - 12x$	Exponents Powers of Integers Exponent notation Exponent Notation and Algebra Properties of Exponents Simplifying with Exponent Laws 1 Multiplication with exponents Exponent Laws and Algebra Exponent Laws with Brackets Multiplication and Division with Exponents The Zero Exponent Zero Exponent and Algebra
operations with **polynomials**, of degree less than or equal to 2	• variables, degree, number of terms, and coefficients, including the constant term • $(x^2 + 2x - 4) + (2x^2 - 3x - 4)$ • $(5x - 7) - (2x + 3)$ • $2n(n + 7)$ • $\frac{15k^2 - 10k}{5k}$ • using algebra tiles	Expanding Brackets Expanding with Negatives Expand then Simplify Expanding Binomial Products Special Binomial Products Factoring Grouping in Pairs Factoring Quadratics 1 Factoring Quadratics 2 Simplifying Algebraic Fractions by Factoring Algebraic Fractions 3 Factoring and Fractions 1
two-variable linear relations, using graphing, interpolation, and extrapolation	• two-variable continuous linear relations; includes rational coordinates • horizontal and vertical lines • graphing relation and analyzing • interpolating and extrapolating approximate values • spirit canoe journey predictions and daily checks	Graphing from a Table of Values Horizontal and Vertical Lines Determining a Rule for a Line $y = ax$ Conversion Graphs Linear Modelling Breakeven Point Slope of a Line Gradient Gradients for Real Intercepts Equation of a Line 1 Equation from Point and Gradient Which Straight Line?

British Columbia Curriculum
Alignment with Mathletics

Grade 9

Content	Elaborations	Activities
multi-step one-variable linear equations	• includes distribution, variables on both sides of the equation, and collecting like terms • includes rational coefficients, constants, and solutions • solving and verifying $1 + 2x = 3 - \frac{2}{3}(x + 6)$ • solving symbolically and pictorially	Solving Simple Equations Equations with Fractions Equations: Variables, Both Sides Equations with Grouping Symbols Equations with Fractions 2 Checking Solutions Find the Mistake Substitution in Formulae Real Formulae Rearranging the Equation Equations to Solve Problems
spatial **proportional reasoning**	• scale diagrams, similar triangles and polygons, linear unit conversions • limited to metric units • drawing a diagram to scale that represents an enlargement or reduction of a given 2D shape • solving a scale diagram problem by applying the properties of similar triangles, including measurements • integration of scale for First Peoples mural work, use of traditional design in current First Peoples fashion design, use of similar triangles to create longhouses/models	Metres and Kilometres Centimetres and Metres Converting cm and mm Converting Units of Length Operations with Length Simplify Ratios: 2 Whole numbers Simplify Ratios: 3 Whole Numbers Simplify Ratios: Fractions Simplify Ratios: Mixed Numbers Simplify Ratios: Decimals Equivalent Ratios Ratio Word Problems: Ratio Dividing a Quantity into a Ratio Ratio Word Problems Solve Proportions Similar Figures 1 Similar Figures Scale Factor Scale Scale Measurement Floor Plans Using Similar Triangles 1 Similar Triangles

British Columbia Curriculum

Alignment with Mathletics

Grade 9

Content	Elaborations	Activities
statistics in society	• population versus sample, bias, ethics, sampling techniques, misleading stats • analyzing a given set of data (and/or its representation) and identifying potential problems related to bias, use of language, ethics, cost, time and timing, privacy, or cultural sensitivity • using First Peoples data on water quality, Statistics Canada data on income, health, housing, population	Data Types Methods of Data Sampling Mode The Mean Median Data Extremes and Range Mode from Frequency Table Mean from Frequency Table Median from Frequency Table Frequency Histograms Mode from Stem and Leaf Plot Median from Stem and Leaf Plot Stem and Leaf Plots with Range Double Stem and Leaf Plots Calculating Interquartile Range Box-and-Whisker Plots 1 Box-and-Whisker Plots 2 Skewness of Data
financial literacy – simple budgets and transactions	• banking, simple interest, savings, planned purchases • creating a budget/plan to host a First Peoples event	Successive Discounts Simple Interest Purchase Options Compound Interest Compound Interest by Formula Depreciation

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