

Learning Maps for The New BC Curriculum

Why were the learning maps created?

1. As a service, support, and resource for teachers!
 - a. Many teachers have expressed confusion around how to assess the curricular competencies in connection with the big ideas and content. Although the rubrics appear to be organized by the big ideas, this is because students need a topic to analyze, evaluate, inquire into, etc. The focus is on the competencies, not the content, but we are using the content as a vehicle for developing the competencies.
2. To support the inclusion of diverse learners
 - a. The idea that all students will achieve the exact same competency standards is not realistic given the diversity of our learners. We need to understand the scope and sequence of development so that we can assess where students are, set goals for the next stage of their learning, and teach what our students are ready for.
 - b. Competency based IEP's are important, and at the same time, we still want students with disabilities to have access to general curriculum. The intent here is to show the early stages of competency and conceptual development, so we can see where to start with learners who are not yet ready for the complexity others may be ready for.

How to Use the Rubrics

1. The rubrics are for the unit. You do not need a rubric for every activity, that will exhaust teachers. You can use the same rubric all term long. One day you are drawing diagrams, another time completing a written activity, and a third you are having a class discussion. Regardless of how the student demonstrates their learning (i.e. visually, in writing, or orally), they can be assessed on the rubric.
2. Use different colors for each week to track student learning. So you might highlight a student in week one of the unit in the emerging column in yellow, then in week three they demonstrate developing level competencies so you use a blue highlighter, and then by the end of the unit they have achieved proficiency which you might highlight in pink. This tracks a student's learning across the term. In the end, if they achieved proficiency – their mark reflects this level of mastery – i.e. they would get a B, or a percentage in the 73-85 range. We DO NOT average marks – it doesn't matter where they started, it's what they achieved that counts!

For students on I.E.P.s in the elementary years, IEP goals might say something like “Jennifer will develop emerging level competencies and understandings in Science”. In the high school years, where even the emerging level may be too complex for students with significant intellectual disabilities, the “Access Point” column has been added to support teachers in recognizing the entry points to learning these students may benefit from. In this case, an IEP goal might say something like “Jennifer will achieve access level competencies and understandings in science”, and the mark would then be related to their IEP, not course credit requirements. NOTE: Students with Learning Disabilities should NEVER be modified – they have the same cognitive abilities as their peers – they just need differentiated opportunities to learn and demonstrate their learning. Their goals should be the same as every one else's – proficiency! The access point is for students with significant intellectual disabilities, not learning disabilities.

KINDERGARTEN MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/k>

Big Idea	Emerging	Developing	Proficient	Extending
Numbers represent quantities that can be decomposed into smaller parts	Separates groups of objects into smaller groups, recognizes groups have less / are smaller	Decomposes numbers based on the idea of “sharing” using concrete, pictorial, and symbolic forms	Estimates, models how numbers can be decomposed and recomposed (conservation), justifies conclusions	Models innovative ways of demonstrating decomposition
On to one correspondence and a sense of 5 and 10 are essential for fluency with numbers	Counts concrete objects with one to one correspondence to 5	Subitizes groups to 5, compares groups to 5 (more/less)	Experiments with estimation and ways to count, sort, and compare groups to 10, reflects on learning	Experiments with adding and subtracting numbers using concrete objects
Repeating elements in patterns can be identified	Identifies and copies a pattern	Extends a simple a-b-a-b pattern	Creates repeating patterns using a variety of concrete, pictorial, and symbolic forms	Observes patterns in the natural environment
Objects have attributes that can be described, measured, and compared	Describes common attributes of objects (size, color, etc.) in the local environment	Sorts objects from local cultures and environments based on a single attribute	Compares objects from local cultures and environments based on attributes, measurements	Considers more than one attribute in sorting and measuring objects from local cultures and environments
Familiar events can be described as likely or unlikely and compared	Defines the words likely and unlikely	Describes common experiences that are connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures as likely or unlikely (e.g. snow in summer)	Collects data to determine likelihood of an event that is connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures in their local environment	Proposes scenarios related to likely or unlikely occurrence of events that are connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures

GRADE 1 MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/1>

Big Idea	Emerging	Developing	Proficient	Extending
Concrete graphs help us to compare and interpret data and show one to one correspondence	Creates single variable bar graphs with 1-1 correspondence	Interprets single variable bar graphs with 1-1 correspondence and interprets data to answer questions.	Compares two or more variables within a graph based on 1-1 correspondence and draws conclusions about the information in a graph	Chooses and uses effective and innovative strategies to solve problems by constructing and interpreting graph
Objects and shapes have attributes that can be describes, measured, and compared	Identifies 2D shapes and 3D objects from local cultures and environments given an attribute.	Sorts 2D shapes and 3D objects from local cultures and environments according to one attribute.	Assesses 2D shapes and 3D objects from local cultures and environments according to 2 or more attributes, creates own categories for organization.	Applies knowledge of 2D shapes, 3D solids, and their attributes to real world problems.
	Understands language used for measurement: shorter, longer, taller, bigger, smaller, more, less.	Compares two objects using given non-uniform units.	Experiments with uniform and non-uniform ways of comparing mass, length, width, height and capacity of objects	Uses innovative tools to measure and compare mass, length, width, height and capacity.
Repeating elements in patterns can be identified	Identifies simple a-b-a-b patterns	Can extend an identifiable pattern	Models patterns with self-determined rules, justifies reasoning	Creates complex patterns with multiple attributes
	Identifies simple numerical patterns	Recognizes numerical patterns given a template (e.g. skip counting)	Investigates numerical patterns, uses multiple strategies to apply patterning to problem solving and predicting	Creates complex patterns, observes patterns in daily life (e.g. time/schedules)
Addition and subtraction with numbers to 10 can be modelled concretely, pictorially, and symbolically, to develop computational fluency	Understands that adding is putting things together to make more, and subtracting is taking some things away to make less.	Estimates, models adding and subtracting concretely, pictorially and symbolically	Models adding and subtracting concretely, pictorially and symbolically, selects appropriate operations to solve problems connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures	Demonstrates the reversibility of addition and subtraction, reflects on thinking connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures
Numbers to 20 represent quantities that can be decomposed into 10s & 1s	Understands that numbers can be broken into smaller parts	Decomposes numbers in different ways.	Models the relationship between 10 and 1.	Explains how an understanding 1 and 10 help us decompose and compose numbers to 20.

GRADE 2 MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/2>

Big Idea	Emerging	Developing	Proficient	Extending
Numbers to 100 represent quantities that can be decomposed into 10s and 1s	Counts to 100 by 1's and 10's	Counts backwards from 100 by 1's and 10's, estimates numbers to 100	Models, using a variety of technology, decomposing of numbers to 100 using place value charts and blocks (e.g. trading 10's for 1's)	Selects strategies for decomposing numbers to 100, justifies
Development of computational fluency in addition and subtraction with numbers to 100 requires an understanding of place value	Counts to 100 by 1's and 10's	Illustrates grouping of ones and tens using place value charts with concrete and pictorial representations	Estimates, demonstrates an understanding of addition and subtraction with numbers to 100 using manipulative, drawings, and symbols	Creates problems connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures that lead to groupings of ones and tens to represent place value
The regular change in increasing patterns can be identified and used to make generalizations	Identifies increasing patterns	Makes logical predictions based on an increasing pattern (e.g. what comes next)	Analyzes complex increasing patterns connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures, identifies units and makes predictions based on them	Applies the use of increasing patterns to real life world problems connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures
Objects and shapes have attributes that can be described, measured, and compared	Identifies 2D shapes	Identifies 3D shapes, and the 2D shapes within them	Sorts 2D and 3D shapes from local cultures and environments according to multiple attributes, identifies sorting rules	Selects the best shape for a given task considering its attributes
	Identifies 2D and 3D shapes in the environment	Describes Northwest Coast Indigenous shapes	Makes connections between Northwest Coast Indigenous shapes and objects in the environment	Designs visual representations using Northwest Coast Indigenous shapes and objects in the environment
	Compares shapes based on observable measurements (bigger, smaller, etc.)	Measures simple shapes using non-standard units	Uses multiple strategies to measure and compare 2D and 3D shapes using standard units	Designs structures using shapes, with appropriate measurements to perform a task
Concrete items can be represented, compared, and interpreted pictorially in graphs	Recognizes the pictorial representation of concrete graphs, using one-to-one correspondence	Represents concrete items in graphs	Analyzes graphs to compare and interpret data, justifies conclusions using appropriate language	Interprets graphs to make predictions or solve problems

GRADE 3 MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/3>

Big Idea	Emerging	Developing	Proficient	Extending
Fractions are a type of number that can represent quantities	Names basic fractions (halves, quarters, wholes)	Understands that fractions are “pieces”	Explains how fractions represent a piece, or pieces, of a whole, reflects on thinking related to experiences with fractions (e.g. sharing a cookie)	Compares different fractions (what is more, $\frac{1}{4}$ or $\frac{1}{10}$)
Development of computational fluency in addition, subtraction, multiplication, and division of whole numbers requires flexible decomposing and composing	Solves simple problems using addition and subtraction	Solve simple problems involving money using addition, subtraction, multiplication, and division, justifies strategy	Selects strategies to flexibly solve problems involving composing and decomposing numbers, including simple missing numbers and money, represents concretely, pictorially, and symbolically	Uses mental math, estimation, and conceptual reasoning to solve problems and communicate understanding
Regular increases and decreases in patterns can be identified and used to make generalizations	Identifies abab pattern	Demonstrates how to continue a growing or decreasing pattern	Makes predictions, analyzes likely outcomes based on a pattern, justifies thinking and connects to Indigenous worldviews	Composes increasing or decreasing patterns to demonstrate a concept
Standard units are used to describe, measure, and compare attributes of objects’ shapes	Identifies common standard units	Measures and describes objects using standard units	Estimates and compares attributes of objects (e.g. mass, length) or time (e.g. how long it will take to...) using standard units in order to solve problems	Can solve measurement problems using different methods, units, and strategies. Formulates predictions, likelihood of possible outcomes, and generalizations.
The likelihood of possible outcomes can be examined, compared, and interpreted.	Describes common experiences as likely or unlikely (e.g. snow in summer)	Interprets tables, explains predictions of likely/unlikely	Analyzes how data helps us understand our world, uses data to compare possible solutions/outcomes connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures	Formulates predictions, likelihood of possible outcomes, and generalizations, considering multiple variables (well if this happens it’s likely, but if this happens it’s not)

GRADE 4 MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/4>

Big Idea	Emerging	Developing	Proficient	Extending
Fractions and decimals are types of numbers that can represent quantities	Names basic fractions (halves, quarters, wholes)	Identifies different ways to represent pieces of a whole, when and where they are used	Describes the uses of differing mathematical ways to represent pieces of a whole - Applies them to problem based learning depicting real life scenarios connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures	Compares and contrasts differing mathematical ways to represent pieces of a whole as tools for representing pieces of a whole in daily life situations
Development of computational fluency and multiplicative thinking requires an analysis of patterns and relations in multiplication and division	Identifies repeating patterns of common number (e.g. three red, three blue)	Recognizes common patterns in number charts, explains in relation to skip counting, uses to estimate	Makes connections between repeated addition / subtraction and multiplication and division, uses mental math and visualization to calculate simple multiplication and division problems	Solves problems using multiplicative or factorial thinking
Regular changes in patterns can be identified and represented using tools and tables	Recognizes simple numerical patterns	Estimates, models examples of increasing and decreasing patterns in the natural world using tables and charts	Selects appropriate strategies to solve problems involving increasing and decreasing patterns - communicates in a variety of ways using appropriate mathematical language	Makes cross-curricular connections involving increasing and decreasing patterns connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures
Polygons are closed shapes with similar attributes that can be described, measured, and compared	Recognizes common polygons	Compares, sorts, and measures regular and irregular polygons	Visualizes, designs to connect polygons to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures	Makes connections between polygons and architecture, design, and art
Analyzing and interpreting experiments in data probability develops understanding of chance	Interprets tables, explains predictions of likely/unlikely	Estimates, describes self-collected data related to probability/chance	Designs experiments to test probability, records data accurately and communicates in a variety of ways using appropriate mathematical language	Interprets patterns of data to make predictions about the likelihood of occurrence of events related to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures
	C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 5 MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/5>

Big Idea	Emerging	Developing	Proficient	Extending
Numbers describe quantities that can be represented by equivalent fractions	Identifies common fractions	Recognizes that fractions can be equivalent	Analyzes how equivalent fractions are used in our daily lives	Selects and justifies representations of parts of a whole for specific contexts or solutions to problems (ie. when to use a fraction, decimal, or percent)
	Recognizes that fractions represent parts of a whole	Models how fractions, decimals, and percents represent parts of a whole concretely, pictorially, and symbolically	Visualizes and compares fractions, decimals, and percents for equivalency using appropriate mathematical vocabulary	
Computational fluency and flexibility with numbers extends to operations with larger (multi-digit) numbers.	Recognizes relationships between functions	Estimates and models multi-digit equations using addition, subtraction, multiplication or division represents concretely, pictorially, and symbolically	Compares different strategies for solving a problem connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures justifies selection using appropriate mathematical language	Formulates problem-based situations in a real-life context using addition, subtraction, multiplication and division.
Identified regularities in number patterns can be expressed in tables	Recognizes that patterns change, and this can be represented using tools and tables	Interprets regularities in number patterns that are expressed in tables.	Selects appropriate strategies to solve problems involving regularities in number patterns that are expressed in tables.	Predicts regularities in complex number patterns that are expressed in tables and graphs.
Closed shapes have an area and perimeter that can be described, measured, and compared	Defines area and perimeter.	Estimates and measures area and perimeter and compares in general terms (e.g. bigger, smaller)	Evaluates the different ways we use area and perimeter in our daily lives, solves problems related to these applications connected to place, story, cultural practices and perspectives relevant to Indigenous peoples, the local community, and other cultures	Visualizes and Constructs a representation using area and perimeter to enhance reliability and/or effectiveness.
Data represented in graphs can be used to show many-to-one correspondence.	Recognizes that data can be represented in graphs and can be used to show many-to-one correspondence.	Describes ways data represented in graphs can be used to show many-to-one correspondence.	Able to gain insight and make connections from interpreted visual or numerical data and clearly communicate their insights.	Creates a data system to represent many-to-one correspondence
	C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 6 MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/6>

Big Idea	Emerging	Developing	Proficient	Extending
Mixed numbers and decimal numbers represent quantities that can be decomposed into parts and wholes	Recognizes that there are many ways to represents pieces of a whole	Models ways in which mixed numbers and decimals can be decomposed into parts and wholes	Selects appropriate strategies to estimate, model and solve problems relevant to local Indigenous peoples and community, and other cultures involving the decomposition of mixed numbers and decimals	Evaluates and justifies solutions to problems based on both mathematical and social variables (ie equity versus equality)
Computational fluency and flexibility with numbers extend to operations with whole numbers and decimals	Defines basic operations and their uses (ie what is division and when should it be used)	Explores and describes, using a variety of technologies, relationships between functions in general (e.g. addition & subtraction)	Uses logic to analyze direct relationships and order of operations between functions in relation to mixed numbers, ratios, percents, and decimals	Flexibly selects strategies for problem solving relevant to local Indigenous peoples and community, and other cultures with fractions, models reasoning
Linear relations can be identified and represented using expressions with variables and line graphs and can be used to form generalizations	Recognizes that variables can be related (e.g. this causes this)	Interprets simple patterns / graphs of linear relations	Models how linear relationships can be used to communicate and generalize real world patterns relevant to local Indigenous peoples and community, and other cultures mathematically.	Evaluates the appropriate method, given a real life problem relevant to local Indigenous peoples and community, and other cultures, to represent a pattern algebraically
Properties of objects and shapes can be described, measured, and compare using volume, area, perimeter, and angles	Describes visible characteristics of objects and shapes	Estimates, measures and computes surface area, volume, perimeter, and angles using provided algorithms	Compares spatial relationships between and among area, volume, perimeter, and angles	Designs and formulates diagrams for context-based problems.
Data from the results of an experiment can be used to predict the theoretical probability of an event and to compare and interpret	Observes and records data for probability experiments	Demonstrates how logical predictions about the probability of an event's occurrence can be made based on data presented	Compares and contrasts the quality of varying sets of data for assisting prediction (able to say they are "very confident", or "not very confident" based on data, and explain why)	Explains how and why the probability of an event's occurrence can be predicted with varying degrees of confidence.
	C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 7 MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/7>

Big Idea	Emerging	Developing	Proficient	Extending
Decimals, fractions, and percents are used to represent and describe parts and wholes of numbers	Recognizes that there are many ways to represent pieces of a whole	Models ways in which fractions, percents, and decimals can be decomposed/composed into parts and wholes	Selects appropriate strategies and forms (i.e. whether to use a fraction, decimal, or percent) to estimate, model and solve problems connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures involving fractions, percents, and decimals	Evaluates and justifies solutions to problems based on both mathematical and social variables (ie equity versus equality)
Computational fluency and flexibility with numbers extended to operations with integers and decimals	Describes relationships between functions in general (e.g. addition & subtraction)	Explores and describes, using a variety of technologies the relationship between integers and decimals	Makes connections to other areas and personal interests related to operations with integers and decimals (eg when and where are they used, writes problems)	Integrates operations with integers and decimals into financial literacy problems, with consideration of factors beyond just rote calculation
Linear relations can be represented in many connected ways to identify regularities and make generalizations	Identifies linear relationships on a graph	Describes difference between linear and non-linear relationships	Models differences between linear and non-linear relationships and connects to examples of these relationships in the environment	Infers the importance of understanding linear and non-linear relationships for research connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures requiring patterns and predictions (e.g. predicting medical outcomes of a treatment)
	Recognizes that linear relationships can change	Gives examples of factors that can change linear relationships	Explains variables that can change linear relationships on a graph	
The constant ratio between the circumference and diameter of circles can be used to describe, measure, and compare spatial relationships	Defines ratio, diameter, and circumference	Computes and models diameter and circumference using provided algorithms	Designs and formulates diagrams for context-based problems connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures involving the ratio between circumference and diameter of circles	Considers social and cultural factors in examining the importance of circles, and architectural design using them
Data from circle graphs can be used to illustrate proportion and to compare and interpret	Recognizes that data can be represented in circle graphs to illustrate proportion	Models ways, using appropriate technologies, that data represented in graphs can be used to show proportion	Makes connections, draws comparisons, from data connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures represented in circle graphs	Designs infographics related to social issues connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures using circle graphs & other forms of proportional representation
	C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 8 MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/8>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Number represents, describes, and compares the quantities of ratios, rates, and percents	Uses numbers to make simple comparisons (e.g. more/less)	Recognizes that numbers can be used to make comparisons in a number of ways	Models common uses of numbers for comparison (e.g. sports statistics, prices), uses mental math to make simple comparisons and calculations related to rates and percents	Estimates, compares and contrasts numbers using varied forms of proportional representation and reasoning using appropriate tools and technologies	Solves problems using proportional reasoning, justifies choices (e.g. why use a percent versus a ratio in a given circumstance)
Computational fluency and flexibility extend to operations with fractions	Identifies common fractions	Describes relationships between functions in general (e.g. addition & subtraction)	Explains direct relationships between functions in relation to fractions	Flexibly selects strategies for solving problems connected with place, story, cultural practices, and perspectives relevant to local Indigenous and local communities and other cultures with fractions, models reasoning using appropriate tools and technologies	Applies understanding to develop algorithms to solve complex, real world problems
Discrete linear relationships can be represented in many connected ways and used to identify and make generalizations	Interprets simple line graphs	Understands that variables can influence each other in predictable ways	Produce, using appropriate tools and technologies, and explain how an equation or graph describes a discrete relationship that is constant, with supporting examples	Models how a real world, functional relationship can be represented by an equation, proposes solutions based on patterns / predictability	Evaluates solutions to problems connected with place, story, cultural practices, and perspectives relevant to local Indigenous and local communities and other cultures based on both mathematical and social variables, justifies importance of resolution (i.e. some problems may affect more people, but be of less severity, and vice-versa)
		Identifies relationship patterns (e.g. when x happens, y increases)	Interpolate and extrapolate values within a graph	Evaluate whether a graph represents a linear situation or equation	Create an infographic to present data regarding a local issue which includes a linear equation and its graph
The relationship between surface area and volume of 3-D objects can be used to describe, measure, and compare spatial relationships	Identifies 3D objects Measures 2 D objects	Estimates and measures surface area of 2D and 3D shapes	Estimates and computes surface area and volume using provided algorithms	Compares spatial relationships between and among area and volume and 3D shapes using appropriate tools and technologies	Designs and formulates diagrams for context-based problems. Can combine formulas to hypothesize surface area/volume of irregularly shaped objects.
Analyzing data by determining averages is one way to make sense of large data sets and enables us to compare and interpret	Identifies trends in data (e.g. most of the numbers are around ___)	Defines “average” mathematically	Models the reasoning behind calculating average (each score is equally weighted, looking for common value)	Estimates averages, compares and interprets large data sets using averages	Argues pros and cons of calculating averages to represent a data set
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 9 MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/9>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
The principles and processes underlying operations with numbers apply equally to algebraic situations and can be described and analyzed	Selects operations accurately with rational numbers given a real life application	Recognizes the different operations available to rational numbers (addition, subtraction, multiplication, division, and order of operations).	Estimates, calculates using appropriate tools and technologies, and simplifies operations using rational numbers, including exponents and polynomials to determine relationships in algebraic formulae	Flexibly selects strategies for solving problems connected with place, story, cultural practices, and perspectives relevant to local Indigenous and local communities and other cultures with rational numbers, exponents, and polynomials to determine relationships in algebraic formulae	Applies understanding to develop algorithms and algebraic formulae to solve complex, real world problems connected with place, story, cultural practices, and perspectives relevant to local Indigenous and local communities and other cultures
Computational fluency and flexibility with numbers extends to operations with rational numbers	Describes reverse operations (addition to subtraction, for instance)	Describes relationships between functions in general (e.g. addition & subtraction)	Estimates, models using appropriate tools and technologies, and explains direct relationships between functions in relation to rational numbers	Flexibly selects strategies for problem solving with rational numbers, models reasoning	Applies understanding to develop algorithms to solve complex, real world problems
Continuous linear relationships can be identified and represented in many connected ways to identify regularities and make generalizations	Makes predictions based on patterns	Identify examples of linear relations	Model, explain and differentiate between linear and non-linear relations	Analyze real-life data to determine if the pattern or relationship is linear	Critique a local issue that shows a linear pattern and propose a solution
		Explain the linear pattern in a graph List the components of a clearly labelled graph	Produce a graph that shows a linear relationship and Interpolate and extrapolate values within a graph	Estimates and analyzes probabilities of an event's occurrence based on linear relationships.	Designs powerful (persuasive) numerate communications to raise awareness of social or scientific issues and relationships
Similar shapes have proportional relationships that can be described, measured, and compared	Recognizes and compares similar shapes of varying proportions	Recognizes, measures and compares in general terms similar shapes of varying proportions	Models, makes connections between scale diagrams and concrete objects	Flexibly moves between scales, ratios, and models of similar shapes	Designs architectural work to scale involving Indigenous shapes, forms, and cultural requirements
Analyzing the validity, reliability, and representation of data enables us to compare and interpret	Categorizes samples and populations	Identifies statistical measures of populations and samples.	Calculates statistical measures of populations and samples.	Discriminates between statistical measures of populations and samples.	Evaluate the ability of statistical measures of a sample to represent the population.
	Poses questions about validity of data	Defines the concept of bias within statistics.	Describes how question or sample design can lead to bias within a data set.	Identifies potential bias or problems related to use of language, ethics, cost, timing, privacy, or cultural sensitivity within a set of data or design.	Designs sample collection methods with consideration of bias or problems of implementation.
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 10 FOUNDATIONS OF MATHEMATICS AND PRE-CALCULUS

<https://curriculum.gov.bc.ca/curriculum/mathematics/10/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Algebra allows us to generalize relationships through abstract thinking	Identifies examples of related variables in the real world	Understands that variables can depend on each other	Describes or defines potential functional relationships (e.g. linear, curvilinear, etc.)	Discriminates between types of functional relationships in applying them to real world relationships	Predicts future directions of social or science issues based on functional relationships as mediated by potential factors
The meanings of, and connections between each operation extend to powers and polynomials.	Represents power with concrete objects to show (e.g. $4^2 = 4$ groups of 4)	Capable of listing types of multiplication operations in terms of powers, and polynomials.	Demonstrates fluent, flexible, and strategic thinking in recognizing which multiplication operations are needed for given problems.	Develop, demonstrate, and apply mathematical understanding of multiplication of polynomial expressions through flexible problem solving.	Model with mathematical operations and its relation to multiplication of polynomial expressions related to personal/real life, situational contexts.
	Composes and decomposes numbers from and into groups	Recognizes categories of operations and strategies necessary to solve puzzles and play games, e.g. prime factorization.	Models specific strategies, including estimation, to solve puzzles and play games through factor pairs	Analyzes and examines strategies to solve puzzles and play games using factor pairs and factor trees.	Develops new thinking strategies to solve puzzles and play games involving the greatest common factor and least common multiple.
Constant rate of change is an essential attribute of linear relations and has meaning in different representations and contexts	Using manipulatives, demonstrates growing patterns	Understands that variables can influence each other in predictable ways	Explains how an equation or graph describes a relationship that is constant, with supporting examples	Models, with and without technology, how a real world functional relationship can be represented by an equation	Proposes solutions based on patterns / predictability
Trigonometry involves using proportional reasoning to solve indirect measurement problems	Measures the perimeter of triangles	Recall and define relevant trigonometry formulas that will be used in solving indirect measurement problems and proportional reasoning	Understand and explain the core concepts of trigonometry such as indirect measurement and proportional reasoning and relate it to a personal interest	Connect mathematical concepts of trigonometry such as indirect measurement and proportional reasoning with each other, and with other practical areas, and personal interests	Synthesize multiple concepts and develop a connection to a larger understanding of a global issue using the properties of proportional reasoning and indirect measurement
		Recall and list trigonometric ratios, using reason, technology, and other tools	Understand and explain trigonometric ratios using reason, technology, and other tools	Explore, analyze, and apply primary trigonometric ratios using reason, technology, and other tools	Synthesize situations where trigonometric ratios are applicable using reason, technology, and other tools are applicable
Representing and analyzing situations allows us to notice and wonder about relationships	Poses questions about relationships, gathers data to explore solutions	Understands that numbers can indicate a “Big problem” or “little problem”	Compares degree of influence, and magnitude of a problem connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures, given examples	Evaluates solutions to problems connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures based on both mathematical and social variables, justifies importance of resolution (i.e. some problems may affect more people, but be of less severity, and vice-versa)	Communicates the urgency of resolving a social issue with power and impact. Uses statistics, equations, and graphs in insightful ways.
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 10 Workplace MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/10/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Proportional reasoning is used to make sense of multiplicative relationships	Uses proportional reasoning to decompose numbers (e.g. 8= two sets of 4)	Identifies real life applications of proportional reasoning in comparing numbers	Models common uses of numbers for comparison (e.g. sports statistics, prices), uses mental math to make simple comparisons and calculations related to ratios, rates of change	Estimates, compares and contrasts numbers using varied forms of proportional representation and reasoning using appropriate tools and technologies, including graphs	Solves problems using proportional reasoning, justifies choices (e.g. why use a percent versus a ratio in a given circumstance)
3-D objects can be examined mathematically by measuring directly and indirectly length, surface area, and volume	Identifies 3D objects Measures 2 D objects	Estimates and measures surface area of 2D and 3D shapes and converts from metric to imperial	Estimates and computes surface area and volume using direct and indirect methods of measurement	Compares spatial relationships between and among area and volume and 3D shapes using appropriate tools and technologies in both direct and indirect ways and converts from metric to imperial	Designs and formulates diagrams for context-based problems. Can combine formulas to hypothesize surface area/volume of irregularly shaped objects.
Flexibility with number builds meaning, understanding, and confidence	Composes and decomposes numbers from and into groups	Converts numbers given algorithms or rations (e.g. currency conversion)	Describes ways in which flexibility with number support daily life	Evaluates importance and uses of flexibility with number in the workplace	Evaluates importance and uses of flexibility with number in the workplace, considers Indigenous and other worldviews, perspectives, knowledge and practices
Representing and analyzing data allows us to notice and wonder about relationships	Poses questions about relationships, gathers data to explore solutions	Understands that numbers can indicate a “Big problem” or “little problem”	Compares degree of influence, and magnitude of a problem connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures, given examples	Evaluates solutions to problems, probability connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures based on both mathematical and social variables, including those related to financial management	Communicates the urgency of resolving a social issue with power and impact based on data, considers Indigenous worldviews, perspectives, knowledge and practices.
	Recognizes and performs simple operations with money	Interprets data trends in tables	Calculates measures of central tendency from a table of data	Solves problems using data trends and measures of central tendency related to financial literacy	Proposes a business plan based on data and financial literacy
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 11 COMPUTER SCIENCE

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Decomposition helps us solve difficult problems by managing complexity.					
Algorithms are essential in solving problems computationally					
Programming is a tool that allows us to implement computational thinking.					
Solving problems is a creative process.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 11 FOUNDATIONS OF MATHEMATICS

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Similar shapes and objects have proportional relationships that can be described, measured, and compared.					
Optimization informs the decision-making process in situations involving extreme values.					
Logical reasoning helps us discover and describe mathematical truths.					
Statistical analysis allows us to notice, wonder about, and answer questions about variation.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 11 History of MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Mathematics has developed over many centuries and continues to evolve.					
Mathematics is a global language used to understand the world.					
Societal needs across cultures have influenced the development of mathematics.					
Tools and technology are catalysts for mathematical development.					
Notable mathematicians in history nurtured a sense of play and curiosity that led to the development of many areas in mathematics.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 11 MATH (PreCal)

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Algebra allows us to generalize relationships through abstract thinking.	Identifies examples of related variables in the real world	Recognize that mathematics, thus pre-calculus, helps us make sense of the world around us.	Identifies virtues of mathematics to influence perceptions and realities in the world.	Analyzes how and why mathematics has the potential to empower and restrain relations, including Indigenous and multicultural perspectives.	Makes connections between and proposes models for mathematical concepts and the world around us.
	Describes simple linear relationships (e.g. more of this means there will be more of this) Collects data, creates graphs using coordinates	Demonstrate an understanding of radian measure and angles in standard position, expressed in degrees, radians and rational number (convert between degree and radian angle, identify co-terminal angles, and determine arc length)	Uses unit circle to estimate and determine exact values and coordinates for points (in trigonometric ratio form, radian form) on or off the unit circle (given x or y-coordinate, angle in radian or degree form) using concrete, pictorial, and symbolic representations	Inquires, solves (algebraically and graphically) trigonometric equations (using trig. identities; reciprocal, quotient, Pythagorean, difference, sum, and double-angle identities) and graphs functions [(sine and cosine, with their characteristics identifying roots, domain, and range).	Applies trigonometric function (sinusoidal and other periodic functions) and equivalent expressions (trigonometric identities) to investigate and gain deeper understanding of physical and natural world (Geological phenomenon, movements of projectiles on Earth)
The meanings of, and connections between, operations extend to powers, radicals, and polynomials.	Uses repeated addition to make connections to exponents Identifies x as representation of a variable	Recognizes polynomial and radical expressions, equations, and functions.	Estimates, models simple polynomial and radical equations and functions (algebraically) by finding zeros and intercepts of the given function and equation.	Uses multiple strategies to graph solve (algebraically, graphically, remainder theorem, factor theorem, etc.), and analyze characteristics (vertex, intercepts, direction of graph openings, domain and range, axis of symmetry, zeros of function, etc.) that dictate various graphical transformations.	Proposes and investigates varying parameters for different graphical functions using technologies (graphing calculators and computer programs) to study effectiveness and efficiency of mathematical designs and models (structural strength, flight, pressure points, shapes and capacity)
Quadratic relationships are prevalent in the world around us.	Collects data, creates graphs using coordinates related to quadratics	Solves simple linear (equalities and inequalities), absolute value, and quadratic equations (where coefficient of x^2 and x are 1)	Models quadratic, radical, and rational equations using strategies such as factoring, completing squares, quadratic formulas, rationalizing, etc. using concrete, pictorial, and symbolic representations	Solves real life problems connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures (length of time for a projectile that is airborne, interplanetary distance, etc.) involving various types of equations.	Designs and investigates key features of a model that involves various graphical models (Subway tunnel structures, mining shafts, aircraft fuselage, storage tanks, etc.) using basic materials (corrugated cardboard, plastic, polystyrene material, etc.)
Trigonometry involves using proportional reasoning to solve indirect measurement problems.	Uses concrete objects to represent proportional reasoning	Understands common proportional language and applications	Solves problems involving indirect measurement using trigonometry, explains using mathematical vocabulary and language	Analyzes how trigonometry is related to proportional reasoning and can be used to solve indirect measurement problems connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures	Applies proportional reasoning to complex problems, with insight
Communicating and Representing	Shows understandings in a variety of ways	Models mathematical ideas and decisions using concrete, pictorial, and symbolic representations	Explains mathematical ideas and decisions using concrete, pictorial, and symbolic	Explain and justify mathematical ideas and decisions in many ways using concrete, pictorial, and symbolic	Designs sophisticated methods of communicating mathematical understandings to a particular audience

			representations	representations	
	Uses simple mathematical language to represent number, shape, and patterns	Uses mathematical language to communicate thinking	Use mathematical vocabulary and language to contribute to discussions in the classroom	Use mathematical vocabulary and language to contribute to discussions in the classroom with courage, creativity, and ease	
Connecting and Reflecting	Describes strategies used to gain understanding and represent thinking	Describes strategies used to gain understanding and represent thinking	Describes strategies used to gain understanding and represent thinking, uses mistakes to gain understanding	Analyzes mathematical thinking, uses mistakes to gain understanding and provide limits to concepts and skills	Makes connections between prior knowledge and experience, personal strategies and affinities, and mathematical thinking
	Gives examples of situations where mathematics applies	Connects mathematical concepts with each other and personal interests	Connects mathematical concepts with each other, personal interests, and other areas of real life	Connect mathematical concepts with each other, personal interests, and other areas of life, including First Peoples worldviews, perspectives, knowledge, and practices	Appreciates multiple worldviews, perspectives, knowledge, and practices related to mathematics
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 11 WORKPLACE MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Proportional reasoning is used to make sense of multiplicative relationships.					
Mathematics informs financial decision making.					
3D objects are often represented and described in 2D space.					
Flexibility with number builds meaning, understanding, and confidence.					
Representing and analyzing data allows us to notice and wonder about relationships.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 12 APPRENTICESHIP MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Design involves investigating, planning, creating, and evaluating.					
Constructing 3D objects often requires a 2D plan.					
Transferring mathematical skills between problems requires conceptual understanding and flexible thinking.					
Proportional reasoning is used to make sense of multiplicative relationships.					
Choosing a tool based on required precision and accuracy is important when measuring.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 12 CALCULUS

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
The concept of a limit is foundational to calculus.					
Differential calculus develops the concept of instantaneous rate of change.					
Integral calculus develops the concept of determining a product involving a continuously changing quantity over an interval.					
Derivatives and integrals are inversely related.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 12 COMPUTER SCIENCE

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Decomposition and abstraction help us to solve difficult problems by managing complexity.					
Algorithms are essential in solving problems computationally					
Programming is a tool that allows us to implement computational thinking.					
Solving problems is a creative process.					
Data representation allows us to understand and solve problems efficiently.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 12 FOUNDATIONS OF MATH

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Probabilistic thinking informs decision making in situations involving chance and uncertainty.					
Modelling data requires an understanding of a variety of functions					
Mathematical analysis informs financial decisions.					
Through explorations of spatial relationships, we can develop a geometrical appreciation of the world around us.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 12 GEOMETRY

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Diagrams are fundamental to investigating, communicating, and discovering properties and relations in geometry.					
Finding invariance amidst variation drives geometric investigation					
Geometry involves creating, testing, and refining definitions.					
The proving process begins with conjecturing, looking for counterexamples, and refining the conjecture, and the process may end with a written proof.					
Geometry stories and applications vary across cultures and time.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 12 PRE-CALCULUS

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Using inverses is the foundation of solving equations and can be extended to relationships between functions.					
Understanding the characteristics of families of functions allows us to model and understand relationships and to build connections between classes of functions.					
Transformations of shapes extend to functions and relations in all of their representations.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100

GRADE 12 STATISTICS

<https://curriculum.gov.bc.ca/curriculum/mathematics/11/courses>

Big Idea	Access Point	Emerging	Developing	Proficient	Extending
Statistics plays an integral role in research, decision making, and policy in society.					
The research question and practical and ethical issues determine whether a statistical study should be observational or experimental.					
Statistical analysis allows us to explore, describe, model, and explain variation.					
We can develop statistical thinking to help make inferences intuitive.					
Statistical findings gain value through effective communication.					
		C-: 50-59	C+: 67-72 C: 60-66	B: 73-85	A: 86-100