

Mathematics

Key for "Province":

Bold type – BC Big Ideas

Regular type – BC content (K-9)

* - BC curricular competency/content (HS)

K-9 Curricular Competencies used throughout all topics: reasoning and analyzing, understanding and solving, communicating and representing

Topics	Gr	North American Division	Province:
Numbers and Operations	11	None	None
Operations and Algebraic Thinking	11	AI.2.1 Understand mathematical concepts (number sense, algebraic and geometric thinking, measurement, data analysis, and probability). MP.7	<p>(F11) Statistical analysis allows us to notice, wonder about, and answer questions about variation.</p> <p>(P11) Algebra allows us to generalize relationship through abstract thinking.</p> <p>Math 10 would only do the quadratic section. The other parts would be related to Pre-Calc 12:</p> <p>*Trigonometry: functions, equations, & identities.</p> <p>*Logarithms: operations, functions, and equations.</p> <p>*Exponential functions and equations.</p>
		AI.2.2 Utilize the problem-solving process (explore, plan, solve, verify). MP.1, MP.2	<p>(F11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials.</p> <p>(P11) Trigonometry involves using proportional reasoning to solve indirect measurement problems.</p> <p>*Solve problems with persistence and a positive disposition.</p> <p>*Apply flexible and strategic approaches to solve problems.</p>
		AI.2.3 Develop higher-order thinking skills (analyze, evaluate, reason, classify, predict, generalize, solve, decide, relate, interpret, simplify, model, synthesize).MP.2, MP.3, MP.4	<p>(F11) Logical reasoning helps us discover and describe mathematical truths.</p> <p>(P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials.</p> <p>*Explore, analyze, and apply mathematical ideas using reason, technology, and other tools.</p> <p>*Model with mathematics in situational contexts.</p> <p>*Explain and justify mathematical ideas and decisions in many ways.</p> <p>*Apply flexible and strategic approaches to solve problems.</p> <p>*Develop thinking strategies to solve puzzles and play games.</p>
		AI.2.4 Attend to precision. MP.6	<p>(F11) Optimization informs the decision-making process in situations involving extreme values.</p> <p>(P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials.</p> <p>*Estimate reasonably and demonstrate fluent, flexible, and strategic thinking about number.</p>
		AI.3.1 Use a variety of strategies in the problem-solving process (i.e. patterns, tables, diagrams). MP.7, MP.8	<p>(F11) Logical reasoning helps us discover and describe mathematical truths.</p> <p>(P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials.</p> <p>*Apply flexible and strategic approaches to solve problems.</p>

		*Develop thinking strategies to solve puzzles and play games.
	AI.3.2 Conduct research (locate, observe/gather, analyze, conclude).	(F11) Statistical analysis allows us to notice, wonder about, and answer questions about variation. (P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials. *Explore, analyze, and apply mathematical ideas using reason, technology, and other tools.
	AI.3.3 Perform calculations with and without technology in life situations. MP.5	(F11) Logical reasoning helps us discover and describe mathematical truths. (P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials. *Explore, analyze, and apply mathematical ideas using reason, technology, and other tools. *Estimate reasonably and demonstrate fluent, flexible, and strategic thinking about number (this is part of the mental math section). *Model with mathematics in situational contexts (this is related to real-life scenarios).
	AI.3.4 Read critically and communicate proficiently with mathematical vocabulary.	(F11) Logical reasoning helps us discover and describe mathematical truths. (P11) Quadratic relationships are prevalent in the world around us. *Use mathematical vocabulary and language to contribute to discussions in the classroom. *Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, inquiry, and problem solving.
	PC.4 Be able to understand concepts of functions.	(F11) Logical reasoning helps us discover and describe mathematical truths. *Quadratic functions (F11). (P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials. *Quadratic functions and equations (P11). (P12) Understanding the characteristics of families of functions allows us to model and understand relationships and to build connections between classes of functions. *Linear functions: slope and equations of lines (M10). *Transformations of functions and relations (P12) *Exponential functions and equations (P12) *Polynomial functions and equations (P12) *Rational functions (P12) *Trigonometry: functions, equations, and identities (P12)
	PC.4.1 Characterize, classify, and transform functions (i.e. even, odd, periodic, piece-wise, continuous, translation, stretch, compression, and trigonometric). F-IF.4, F-BF.3, F-TF.2,4	(P12) Transformations of shapes extend to functions and relations in all of their representations. (P12) Understanding the characteristics of families of functions allows us to model and understand relationships and to build connections between classes of functions.

		<p>*Trigonometry: functions, equations, and identities. *Transformations of functions and relations.</p>
	PC.4.2 Demonstrate knowledge of limits (definition, properties, finite, infinite).	(C12) The concept of a limit is foundational to calculus.
	PC.5 Be able to represent mathematical relationships and situations.	<p>(F11) Logical reasoning helps us discover and describe mathematical truths. (P11) Quadratic relationships are prevalent in the world around us. *Represent mathematical ideas in concrete, pictorial, and symbolic forms.</p>
	PC.5.1 Simplify, verify, and derive trigonometric identities. F-TF.8,9, G-SRT.9,10	<p>(P12) Understanding the characteristics of families of functions allows us to model and understand relationships and to build connections between classes of functions. *Trigonometry: functions, equations & identities.</p>
	PC.5.2 Write, graph, and convert between different forms of equations (rectangular, polar, parametric). N-CN.4	<p>(C12) The concept of a limit is foundational to calculus. *Functions and graphs.</p>
	PC.5.3 Identify, graph, and interpret various expressions and functions (i.e. polynomial, inverse, trigonometric, logarithmic, exponential, vectors). N-VM.1,2,3, A-APR.3,4, F-IF.7, F-BF.4,5, F-LE.5, F-TF.1,3,6	<p>(P11) the meanings of, and connections between, operations extend to powers, radicals, and polynomials. (P11) Trigonometry involves using proportional reasoning to solve indirect measurement problems. (P12) Using inverses is the foundation of solving equations and can be extended to relationships between functions. *Trigonometry: functions, equations, and identities. *Logarithms: operations, functions, and equations. *Exponential functions and equations. *Transformations of functions and relations (this includes inverses).</p>
	PC.5.5 Explore characteristics and operations with sequences and series, as they apply to limits. A-SSE.4, F-BF.2	(C12) The concept of a limit is foundational to calculus.
	PC.5.6 Perform operations of complex numbers on the complex plane. N-CN.4,5,6	(P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials.
	PC.6 Be able to apply appropriate techniques, tools, and formulas to interpret and solve problems.	<p>(F11) Logical reasoning helps us discover and describe mathematical truths. (P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials. *Apply flexible and strategic approaches to solve problems.</p>
	PC.6.1 Solve systems of equations and inequalities using graphs, algebraic methods, and matrices. N-VM.6, A-REI.8,9	<p>(F11) Optimization informs the decision-making process in situations involving extreme values. (P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials.</p>
	PC.6.2 Solve higher-order equations and inequalities from written and oral expression, recognizing equivalent forms.	<p>(F11) Optimization informs the decision-making process in situations involving extreme values. *Linear inequalities.</p>

			<p>(P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials. *Linear and quadratic inequalities.</p>
		PC.6.3 Solve exponential, logarithmic, and trigonometric equations. F-LE.4, F-TF.7, G-SRT.10,11	<p>(P12) Understanding the characteristics of families of functions allows us to model and understand relationships and to build connections between classes of functions. *Trigonometry: functions, equations, and identities. *Logarithms: operations, functions, and equations. *Exponential functions and equations.</p>
		PC.6.4 Perform operations involving polynomials, functions, rational expressions, vectors and matrices. N-VM.4,5,6,7,8,9,10,11,12, A-APR.2,5, F-BF.1	<p>(P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials. (P11) Trigonometry involves using proportional reasoning to solve indirect measurement problems. *Polynomial factoring. *Rational expressions and equations.</p>
		PC.6.5 Demonstrate fractional decomposition.	<p>(P11) The meanings of, and connections between, operations extend to powers, radicals, and polynomials. *Rational expressions & equations: simplifying and applying operations to rational expressions.</p>
		PC.6.6 Demonstrate mathematical proficiency using a graphing utility. MP.5	<p>(F11) Similar shapes and objects have proportional relationships that can be described, measured, and compared. (P11) Trigonometry involves using proportional reasoning to solve indirect measurement problems. *Explore, analyze, and apply mathematical ideas using reason, technology, and other tools.</p>
		PC.6.7 Write, graph, and manipulate equations for conic sections. G-GPE.2,3	<p>(F11) Similar shapes and objects have proportional relationships that can be described, measured, and compared. *Quadratic functions. (P11) Quadratic relationships are prevalent in the world around us. *Quadratic functions and equations.</p>
Measurement	11	None	
Geometry	11	None	None
Data Analysis, Statistics, and Probability	11	CM.4 Be able to understand concepts of personal finance and business mathematics.	(11) Financial literacy: compound interest, investments, and loans.
		CM.4.2 Demonstrate knowledge of the time-value of money and basic financial management.	(11) Financial literacy: compound interest, investments, and loans.
		CM.5 Be able to represent mathematical situations in personal and business life using graphs, tables, and charts.	<p>(F11) Logical reasoning helps us discover and describe mathematical truths. (P11) Quadratic relationships are prevalent in the world around us. (11) Financial literacy: compound interest, investments, and loans. *Explore, analyze, and apply mathematical ideas using reason, technology, and other tools.</p>
		CM.6 Be able to apply appropriate techniques, tools, and formulas to interpret and solve problems.	<p>(F11) Logical reasoning helps us discover and describe mathematical truths. (P11) Quadratic relationships are prevalent in the world around us.</p>

		*Apply flexible and strategic approaches to solve problems.
	CM.6.1 Demonstrate proficiency in basic math skills used by consumers (i.e. decimals, fractions, percentages, proportions).	(11) Financial literacy: compound interest, investments, and loans. *Model with mathematics in situational contexts.
	CM.6.2 Exhibit money management skills (i.e. budgets, checking and savings accounts, risk management, debt management, investments, mortgages, income taxes, and deductions).	(11) Financial literacy: compound interest, investments, loads. *Model with mathematics in situational contexts.
	CM.6.3 Solve consumer-related problems involving time value of money (i.e. simple and compound interest, inflation, present and future values of sums).	(11) Financial literacy: compound interest, investments, loads. *Model with mathematics in situational contexts.
	CM.6.4 Use both mental estimation and technology to make optimal consumer choices.	(11) Financial literacy: compound interest, investments, loads. *Estimate reasonably and demonstrate fluent, flexible, and strategic thinking about number.
	CM.7 Be able to analyze results and draw appropriate conclusions.	(F11) Logical reasoning helps us discover and describe mathematical truths. (P11) Quadratic relationships are prevalent in the world around us. *Explain and justify mathematical ideas and decisions in many ways.
	CM.7.1 Find and interpret information from graphs, charts, and financial statements.	(F11) Statistical analysis allows us to notice, wonder about, and answer questions about variation. (P11) Quadratic relationships are prevalent in the world around us. *Explore, analyze, and apply mathematical ideas using reason, technology, and other tools.
	CM.7.2 Predict patterns and generalize trends.	(F11) Statistical analysis allows us to notice, wonder about, and answer questions about variation. (P11) Algebra allows us to generalize relationship through abstract thinking. *Visualize to explore and illustrate mathematical concepts and relationships.
	CM.7.3 Judge meaning, utility, and reasonableness of findings in a variety of situations, including those carried out by technology.	(F11) Statistical analysis allows us to notice, wonder about, and answer questions about variation. (P11) Algebra allows us to generalize relationship through abstract thinking. *Apply flexible and strategic approaches to solve problems. *Explore, analyze, and apply mathematical ideas using reason, technology, and other tools.
	PC.7 Be able to analyze results and draw appropriate conclusions.	(F11) Statistical analysis allows us to notice, wonder about, and answer questions about variation. (P11) Algebra allows us to generalize relationship through abstract thinking. *Explain and justify mathematical ideas and decisions in many ways.
	PC.7.1 Find and interpret information from graphs, charts, and numerical data. S-ID.6,7, F-IF.9, F-TF.5	(F11) Statistical analysis allows us to notice, wonder about, and answer questions about variation. (P11) Quadratic relationships are prevalent in the world around us. *Explore, analyze, and apply mathematical ideas using reason, technology, and other tools.

		PC.7.2 Predict patterns and generalize trends. S-IC.4,5,6, F-LE.1	<p>(F11) Statistical analysis allows us to notice, wonder about, and answer questions about variation.</p> <p>(P11) Quadratic relationships are prevalent in the world around us.</p> <p>*Visualize to explore and illustrate mathematical concepts and relationships.</p>
		PC.7.3 Judge meaning, utility, and reasonableness of findings in a variety of situations, including those carried out by technology. S-IC.2, S-ID.8, S-MD.6,7	<p>(F11) Statistical analysis allows us to notice, wonder about, and answer questions about variation.</p> <p>(P11) Quadratic relationships are prevalent in the world around us.</p> <p>*Apply flexible and strategic approaches to solve problems.</p> <p>*Explore, analyze, and apply mathematical ideas using reason, technology, and other tools.</p>
Christian Values	11	CM.4.1 Identify various aspects of stewardship (i.e. costs/benefits, needs/wants, tithes and offerings).	<p>(11) Financial literacy: compound interest, investments, and loans.</p> <p>*Explain and justify mathematical ideas and decisions in many ways.</p>

Note: NAD Secondary Mathematics standards are classified by course rather than by grade. For the correlation above, course standards were assigned to grades as follows:

- Gr. 9 – Algebra I standards; Pre-Algebra standards
- Gr. 10 – Algebra II standards; Geometry standards
- Gr. 11 – Consumer Math standards; pre-Calculus standards
- Gr. 12 – Calculus standards

**BC Note: Math 11 and 12 standards reflect two courses for each grade:

- Gr. 11 – Foundations of Math (F11), Pre-Calculus 11 (P11)
- Gr. 12 – Pre-Calculus 12 (P12), Calculus 12 (C12)