



Linking ON Math Curriculum to Binogi: GRADE 8 Examples

		A. SEL Skills	B. Number	C. Algebra	D. Data	E. Spatial Sense	F. Financial Literacy
Strand	Overall Expectations Category	Overall Expectation	Specific Expectation Category	Specific Expectation			Binogi Video
Social-Emotional Learning (SEL) Skills in Mathematics and the Mathematical Processes	A1. SEL Skills and the Mathematical Processes	apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum	Mathematical Processes	<ul style="list-style-type: none"> - identify and manage emotions - recognize sources of stress and cope with challenges - maintain positive motivation and perseverance - build relationships and communicate effectively - develop self-awareness and sense of identity - think critically and creatively 			Problem Solving in Mathematics Is the Answer Reasonable?
	B1. Number Sense	demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life	B1.1	represent and compare very large and very small numbers, including through the use of scientific notation, and describe various ways they are used in everyday life	Scientific Notion		
Number			B1.2	describe, compare, and order numbers in the real number system (rational and irrational numbers), separately and in combination, in various contexts	Irrational Numbers Rational Numbers		
			B1.3	estimate and calculate square roots, in various contexts	Square Roots		
			B1.4	use fractions, decimal numbers, and percents, including percents of more than 100% or less than 1%, interchangeably and flexibly to solve a variety of problems	Fractions and Decimal numbers and percent		





	B2. Operations	use knowledge of numbers and operations to solve mathematical problems encountered in everyday life	B2.1	use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations	Order of Operations
			B2.2	understand and recall commonly used square numbers and their square roots	Square Roots
			B2.3	use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used	Powers and exponents
			B2.4	add and subtract integers, using appropriate strategies, in various contexts	Calculation methods for addition Calculation methods for subtraction
			B2.5	add and subtract fractions, using appropriate strategies, in various contexts	
			B2.6	multiply and divide fractions by fractions, as well as by whole numbers and mixed numbers, in various contexts	Multiplication with fractions Division with fractions





			B2.7	multiply and divide integers, using appropriate strategies, in various contexts	Calculation methods for multiplication Calculation methods for division
			B2.8	compare proportional situations and determine unknown values in proportional situations, and apply proportional reasoning to solve problems in various contexts	Proportionality
Algebra	C1. Patterns and Relationships	identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts	C1.1	identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing and shrinking patterns on the basis of their constant rates and initial values	Patterns
			C1.2	create and translate repeating, growing, and shrinking patterns involving rational numbers using various representations, including algebraic expressions and equations for linear growing and shrinking patterns	The Coordinate of a Point Linear Equations Algebraic Expressions
			C1.3	determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in growing and shrinking patterns involving rational numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing and shrinking patterns	Linear Equations
			C1.4	create and describe patterns to illustrate relationships among rational numbers	
	C2. Equations and Inequalities	demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts	C2.2	evaluate algebraic expressions that involve rational numbers	Working with Algebraic Expressions: Introduction





			C2.3	solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions	Introduction to Equations Solving equations using the index finger method Solving equations using the balancing method
C3. Coding	solve problems and create computational representations of mathematical situations using coding concepts and skills		C3.1	solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves the analysis of data in order to inform and communicate decisions	Variables: Introduction Variables: more examples Variables: Introduction (Python programming) Variables: More Examples (Python programming) Variables: Introduction (JavaScript programming) Variables: More Examples (JavaScript programming) If (programming) If Else (programming) Nested If Else (programming) While Loop (programming) For Loop (programming)
			C3.2	read and alter existing code involving the analysis of data in order to inform and communicate decisions, and describe how	Variables: More examples (Python debugging)





				changes to the code affect the outcomes and the efficiency of the code	Variables: More examples (JavaScript debugging)
Data	D1. Data Literacy	manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life	D1.1	identify situations involving one-variable data and situations involving two-variable data, and explain when each type of data is needed	Statistics: Mode and Median Mean
			D1.3	select from among a variety of graphs, including scatter plots, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs	Bar and Column Graphs Histogram Line Graphs
			D1.4	create an infographic about a data set, representing the data in appropriate ways, including in tables and scatter plots, and incorporating any other relevant information that helps to tell a story about the data	Interpreting Statistics: Introduction Interpreting Statistics: Misleading Presentation of Statistics
			D1.5	use mathematical language, including the terms “strong”, “weak”, “none”, “positive”, and “negative”, to describe the relationship between two variables for various data sets with and without outliers	Range (Statistics) Statistics: Frequency and Graphs
			D1.6	analyse different sets of data presented in various ways, including in scatter plots and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions	Stem and Leaf Plots
	D2. Probability	describe the likelihood that events will happen, and use that information to make predictions	D2.1	solve various problems that involve probability, using appropriate tools and strategies, including Venn and tree diagrams	Randomness and Probability Conditional Probability
			D2.2	determine and compare the theoretical and experimental probabilities of multiple independent events happening and of multiple dependent events happening	





Spatial Sense	E1. Geometric and Spatial Reasoning	describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them	E1.1	identify geometric properties of tessellating shapes and identify the transformations that occur in the tessellations	The Geometry of Quadrilaterals
			E1.2	make objects and models using appropriate scales, given their top, front, and side views or their perspective views	Symmetries Building Polyhedrons
			E1.3	use scale drawings to calculate actual lengths and areas, and reproduce scale drawings at different ratios	The Coordinates of a Point Prisms
			E1.4	describe and perform translations, reflections, rotations, and dilations on a Cartesian plane, and predict the results of these transformations	
	E2. Measurement	compare, estimate, and determine measurements in various contexts	E2.1	represent very large (mega, giga, tera) and very small (micro, nano, pico) metric units using models, base ten relationships, and exponential notation	Measurements Prefixes Measurement Units and Conversions
			E2.2	solve problems involving angle properties, including the properties of intersecting and parallel lines and of polygons	Angles
			E2.3	solve problems involving the perimeter, circumference, area, volume, and surface area of composite two-dimensional shapes and three-dimensional objects, using appropriate formulas	Other Quadrilaterals Area of a Polygon Calculating the Area of a Complex Shape
			E2.4	describe the Pythagorean relationship using various geometric models, and apply the theorem to solve problems involving an unknown side length for a given right triangle	The Surface Area of a Pyramid
Financial Literacy	F1. Money and Finances	demonstrate the knowledge and skills needed to make informed financial decisions	F1.1	describe some advantages and disadvantages of various methods of payment that can be used when dealing with multiple currencies and exchange rates	Pay Now or Pay Later





			F1.2	create a financial plan to reach a long-term financial goal, accounting for income, expenses, and tax implications	Pay Now or Pay Later
			F1.4	determine the growth of simple and compound interest at various rates using digital tools, and explain the impact interest has on long-term financial planning	Simple Interest Compound Interest

*Curriculum Expectation were adapted from *The Ontario curriculum, grades 1-8: Mathematics*. Toronto: Ministry of Education and Training (2020) <https://www.dcp.edu.gov.on.ca/en/curriculum/elementary-mathematics/grades/g6-math/strands>

