



Linking ON Math Curriculum to Binogi: GRADE 6 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"> - problem solving - reasoning and proving - reflecting - connecting - communication - representing - selecting tools and strategies 			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	read and represent whole numbers up to and including one million, using appropriate tools and strategies, and describe various ways they are used in everyday life			The positional system with base 10
Number			B1.2	read and represent integers, using a variety of tools and strategies, including horizontal and vertical number lines			Rational Numbers Introduction to Negative Numbers The Coordinates of a Point
			B1.6	describe relationships and show equivalences among fractions and decimal numbers up to thousandths, using appropriate tools and drawings, in various contexts			Fractions and Decimals





B2. Operations	use knowledge of numbers and operations to solve mathematical problems encountered in everyday life	B2.1	use the properties of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and whole number percents, including those requiring multiple steps or multiple operations	The Four Basic Arithmetical Operations Order of Operations
		B2.2	understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9, and 10	Divisibility
		B2.4	represent and solve problems involving the addition and subtraction of whole numbers and decimal numbers, using estimation and algorithms	Calculation Methods for Addition (algorithms: 3:32 ~ 4:40) Calculation Methods for Subtraction (algorithms: 2:33 ~ 4:19) Rounding and Estimates
		B2.5	add and subtract fractions with like and unlike denominators, using appropriate tools, in various contexts	The Lowest Common Denominator
		B2.6	represent composite numbers as a product of their prime factors, including through the use of factor trees	Prime Numbers: Rectangular Numbers Prime Numbers: Factorisation
		B2.7	represent and solve problems involving the multiplication of three-digit whole numbers by decimal tenths, using algorithms	Calculation methods for multiplication (algorithm: 3:35 ~ 6:00) Calculation methods for multiplication (algorithm: 3:35 ~ 6:00) Stacking Multiplications 6 - decimals (but not 3-digit whole numbers by decimal tenths)





			B2.8	represent and solve problems involving the division of three-digit whole numbers by decimal tenths, using appropriate tools, strategies, and algorithms, and expressing remainders as appropriate	Division – to split in parts Division and Remainders Calculation Methods for Division Division with Decimal Numbers
			B2.9	multiply whole numbers by proper fractions, using appropriate tools and strategies	Multiplication with Fractions (0:00 - 0:40)
			B2.11	represent and solve problems involving the division of decimal numbers up to thousandths by whole numbers up to 10, using appropriate tools and strategies	Short Division with Decimals in the Dividend Division with Decimal Numbers
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 describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and specify which growing patterns are linear	Patterns Number Sequences Proportionality The Slope of a Line Linear Equation with a Constant Term
			C1.2	create and translate repeating, growing, and shrinking patterns using various representations, including tables of values, graphs, and, for linear growing patterns, algebraic expressions and equations	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	Linear Equations





				repeating, growing, and shrinking patterns, and use algebraic representations of the pattern rules to solve for unknown values in linear growing patterns	
C2. Equations and Inequalities	demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts		C2.1	add monomials with a degree of 1 that involve whole numbers, using tools	Working with Algebraic Expressions: Introduction
			C2.3	solve equations that involve multiple terms and whole 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 efficient code, including code that involves conditional statements and other control structures	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) Variables: More examples (Python debugging) Variables: More examples (JavaScript debugging)
	C3.2		read and alter existing code, including code that involves conditional statements and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code		
	C4. Mathematical Modelling	apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations			
Data	D1. Data Literacy	manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life	D1.2	collect qualitative data and discrete and continuous quantitative data to answer questions of interest about a population, and organize the sets of data as appropriate, including using intervals	Statistics: Frequency and Graphs Stem and Leaf Plots
			D1.3	select from among a variety of graphs, including histograms and broken-line graphs, 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
			D1.5	determine the range as a measure of spread and the measures of central tendency for various data sets, and use this information to compare two or more data sets	Statistics: Mode and Median Mean Range (Statistics)
			D1.6	analyse different sets of data presented in various ways, including in histograms and broken-line graphs 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	Interpreting Statistics: Introduction Interpreting Statistics: Misleading Presentation of Statistics
	D2. Probability		D2.1	D2.1 use fractions, decimals, and percents to express the probability of events happening, represent this probability on a	





		describe the likelihood that events will happen, and use that information to make predictions		probability line, and use it to make predictions and informed decisions	Randomness and Probability
			D2.2	D2.2 determine and compare the theoretical and experimental probabilities of two independent events happening	Conditional Probability
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	create lists of geometric properties of various types of quadrilaterals, including the properties of the diagonals, rotational symmetry, and line symmetry	The Geometry of Quadrilaterals
			E1.2	construct three-dimensional objects when given their top, front, and side views	Symmetries Building Polyhedrons
			E1.3	plot and read coordinates in all four quadrants of a Cartesian plane, and describe the translations that move a point from one coordinate to another	The Coordinates of a Point
	E2. Measurement	compare, estimate, and determine measurements in various contexts	E2.1	measure length, area, mass, and capacity using the appropriate metric units, and solve problems that require converting smaller units to larger ones and vice versa	Measurements Prefixes Measurement Units and Conversions
			E2.2	E2.2 use a protractor to measure and construct angles up to 360°, and state the relationship between angles that are measured clockwise and those that are measured counter-clockwise	Angles
			E2.4	E2.4 determine the areas of trapezoids, rhombuses, kites, and composite polygons by decomposing them into shapes with known areas	Other Quadrilaterals Area of a Polygon Calculating the Area of a Complex Shape
			E2.5	E2.5 create and use nets to demonstrate the relationship between the faces of prisms and pyramids and their surface areas	
			E2.6	E2.6 determine the surface areas of prisms and pyramids by calculating the areas of their two-dimensional faces and adding them together	The Surface Area of a Pyramid





Financial Literacy	F1. Money and Finances	demonstrate the knowledge and skills needed to make informed financial decisions	F1.4	explain the concept of interest rates, and identify types of interest rates and fees associated with different accounts and loans offered by various banks and other financial institutions	Simple Interest Compound Interest
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*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>

