GRADE 4/5 - MATH CURRICULUM CHECKLIST
STRAND A - SEL & MATHEMATICAL PROCESSES

A1 Overall: 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	P	T1	T2	Notes and Assessments
problem solving: develop, select, and apply problem-solving strategies				
reasoning and proving: develop and apply reasoning skills (e.g., classification, recognition of relationships, use of counter-examples) to justify thinking, make and investigate conjectures, and construct and defend arguments				
reflecting: demonstrate that as they solve problems, they are pausing, looking back, and monitoring their thinking to help clarify their understanding (e.g., by comparing and adjusting strategies used, by explaining why they think their results are reasonable, by recording their thinking in a math journal)				
connecting: make connections among mathematical concepts, procedures, and representations, and relate mathematical ideas to other contexts (e.g., other curriculum areas, daily life, sports)				
communicating: express and understand mathematical thinking, and engage in mathematical arguments using everyday language, language resources as necessary, appropriate mathematical terminology, a variety of representations, and mathematical conventions				
representing: select from and create a variety of representations of mathematical ideas (e.g., representations involving physical models, pictures, numbers, variables, graphs), and apply them to solve problems				
selecting tools and strategies: select and use a variety of concrete, visual, and electronic learning tools and appropriate strategies to investigate mathematical ideas and to solve problems				

GRADE 4/5 - STRAND A - SEL & MATHEMATICAL PROCESSES

CRITERIA	P	T1	T2	Notes and Assessments
1. express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities				
2. work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience				
3. recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope				
4. work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships				
5. see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging				
6. make connections between math and everyday contexts to help them make informed judgements and decisions				

GRADE 4/5 - STRAND B - NUMBER

B1. Number Sense - demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes and Assessments
Whole Numbers **B1.1** read, represent, compose, and decompose whole numbers up to and including 10 000, using appropriate tools and strategies, and describe various ways they are used in everyday life	**Whole Numbers** **B1.1** read, represent, compose, and decompose whole numbers up to and including 100 000, using appropriate tools and strategies, and describe various ways they are used in everyday life				
B1.2 compare and order whole numbers up to and including 10 000, in various contexts	**B1.2** compare and order whole numbers up to and including 100 000, in various contexts				
B1.3 round whole numbers to the nearest ten, hundred, or thousand, in various contexts					
Fractions and Decimals **B1.4** represent fractions from halves to tenths using drawings, tools, and standard fractional notation, and explain the meanings of the denominator and the numerator	**Fractions, Decimals, and Percents** **B1.3** represent equivalent fractions from halves to twelfths, including improper fractions and mixed numbers, using appropriate tools, in various contexts				
B1.5 use drawings and models to represent, compare, and order fractions representing the individual portions that result from two different fair-share scenarios involving any combination of 2, 3, 4, 5, 6, 8, and 10 sharers	**B1.4** compare and order fractions from halves to twelfths, including improper fractions and mixed numbers, in various contexts				
B1.6 count to 10 by halves, thirds, fourths, fifths, sixths, eighths, and tenths, with and without the use of tools					
B1.7 read, represent, compare, and order decimal tenths, in various contexts	**B1.5** read, represent, compare, and order decimal numbers up to hundredths, in various contexts				
B1.8 round decimal numbers to the nearest whole number, in various contexts	**B1.6** round decimal numbers to the nearest tenth, in various contexts				
B1.9 describe relationships and show equivalences among fractions and decimal tenths, in various contexts	**B1.7** describe relationships and show equivalences among fractions, decimal numbers up to hundredths, and whole number percents, using appropriate tools and drawings, in various contexts				

GRADE 4/5 - STRAND B - NUMBER

B2. Operations - use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes & Assessments
Properties and Relationships **B2.1** use the properties of operations, and the relationships between addition, subtraction, multiplication, and division, to solve problems involving whole numbers, including those requiring more than one operation, and check calculations	**Properties and Relationships** **B2.1** use the properties of operations, and the relationships between operations, to solve problems involving whole numbers and decimal numbers, including those requiring more than one operation, and check calculations				
Math Facts **B2.2** recall and demonstrate multiplication facts for 1 × 1 to 10 × 10, and related division facts	**Math Facts** **B2.2** recall and demonstrate multiplication facts from 0 × 0 to 12 × 12, and related division facts				
Mental Math **B2.3** use mental math strategies to multiply whole numbers by 10, 100, and 1000, divide whole numbers by 10, and add and subtract decimal tenths, and explain the strategies used	**Mental Math** **B2.3** use mental math strategies to multiply whole numbers by 0.1 and 0.01 and estimate sums and differences of decimal numbers up to hundredths, and explain the strategies used				
Addition and Subtraction **B2.4** represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 10 000 and of decimal tenths, using appropriate tools and strategies, including algorithms	**Addition and Subtraction** **B2.4** represent and solve problems involving the addition and subtraction of whole numbers that add up to no more than 100 000, and of decimal numbers up to hundredths, using appropriate tools, strategies, and algorithms				
	B2.5 add and subtract fractions with like denominators, in various contexts				
Multiplication and Division **B2.5** represent and solve problems involving the multiplication of two- or three-digit whole numbers by one-digit whole numbers and by 10, 100, and 1000, using appropriate tools, including arrays	**Multiplication and Division** **B2.6** represent and solve problems involving the multiplication of two-digit whole numbers by two-digit whole numbers using the area model and using algorithms, and make connections between the two methods				

B2.6 represent and solve problems involving the division of two- or three-digit whole numbers by one-digit whole numbers, expressing any remainder as a fraction when appropriate, using appropriate tools, including arrays	**B2.7** represent and solve problems involving the division of three-digit whole numbers by two-digit whole numbers using the area model and using algorithms, and make connections between the two methods, while expressing any remainder appropriately			
B2.7 represent the relationship between the repeated addition of a unit fraction and the multiplication of that unit fraction by a whole number, using tools, drawings, and standard fractional notation	**B2.8** multiply and divide one-digit whole numbers by unit fractions, using appropriate tools and drawings			
B2.8 show simple multiplicative relationships involving whole-number rates, using various tools and drawings	**B2.9** represent and create equivalent ratios and rates, using a variety of tools and models, in various contexts			

GRADE 4/5 - STRAND C - ALGEBRA

C1. Patterns and Relationships - identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes and Assessments
Patterns **C1.1** identify and describe repeating and growing patterns, including patterns found in real-life contexts	**Patterns** **C1.1** identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts				
C1.2 create and translate repeating and growing patterns using various representations, including tables of values and graphs	**C1.2** create and translate growing and shrinking patterns using various representations, including tables of values and graphs				
C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating and growing patterns	**C1.3** determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating, growing, and shrinking patterns				
C1.4 create and describe patterns to illustrate relationships among whole numbers and decimal tenths	**C1.4** create and describe patterns to illustrate relationships among whole numbers and decimal tenths and hundredths				

C2. Equations and Inequalities - demonstrate an understanding of variables, expressions, equations, and inequalities, and apply this understanding in various contexts

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes and Assessments
Variables **C2.1** identify and use symbols as variables in expressions and equations	**Variables and Expressions** **C2.1** translate among words, algebraic expressions, and visual representations that describe equivalent relationships				
	C2.2 evaluate algebraic expressions that involve whole numbers				
Equalities and Inequalities **C2.2** solve equations that involve whole numbers up to 50 in various contexts, and verify solutions	**Equalities and Inequalities** **C2.3** solve equations that involve whole numbers up to 100 in various contexts, and verify solutions				
C2.3 solve inequalities that involve addition and subtraction of whole numbers up to 20, and verify and graph the solutions	**C2.4** solve inequalities that involve one operation and whole numbers up to 50, and verify and graph the solutions				

GRADE 4/5 - STRAND C - ALGEBRA

C3. Coding - solve problems and create computational representations of mathematical situations using coding concepts and skills

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes and Assessments
Coding Skills **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, repeating, and nested events	**Coding Skills** **C3.1** solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves conditional statements and other control structures				
C3.2 read and alter existing code, including code that involves sequential, concurrent, repeating, and nested events, and describe how changes to the code affect the outcomes	**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				

C4. Mathematical Modelling - apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

This overall expectation has no specific expectations. Mathematical modelling is an iterative and interconnected process that is applied to various contexts, allowing students to bring in learning from other strands. Students' demonstration of the process of mathematical modelling, as they apply concepts and skills learned in other strands, is assessed and evaluated.

OVERALL EXPECTATION	P	T1	T2	Notes and Assessments
apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations				

GRADE 4/5 - STRAND D - DATA

D1. Data Literacy - manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes and Assessments
Data Collection and Organization **D1.1** describe the difference between qualitative and quantitative data, and describe situations where each would be used	**Data Collection and Organization** **D1.1** explain the importance of various sampling techniques for collecting a sample of data that is representative of a population				
D1.2 collect data from different primary and secondary sources to answer questions of interest that involve comparing two or more sets of data, and organize the data in frequency tables and stem-and-leaf plots	**D1.2** collect data, using appropriate sampling techniques as needed, to answer questions of interest about a population, and organize the data in relative frequency tables				
Data Visualization **D1.3** select from among a variety of graphs, including multiple-bar 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	**Data Visualization** **D1.3** select from among a variety of graphs, including stacked-bar 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				
D1.4 create an infographic about a data set, representing the data in appropriate ways, including in frequency tables, stem-and-leaf plots, and multiple-bar graphs, and incorporating any other relevant information that helps to tell a story about the data	**D1.4** create an infographic about a data set, representing the data in appropriate ways, including in relative-frequency tables and stacked bar graphs, and incorporating any other relevant information that helps to tell a story about the data				
Data Analysis **D1.5** determine the mean and the median and identify the mode(s), if any, for various data sets involving whole numbers, and explain what each of these measures indicates about the data	**Data Analysis** **D1.5** determine the mean and the median and identify the mode(s), if any, for various data sets involving whole numbers and decimal numbers, and explain what each of these measures indicates about the data				
D1.6 analyse different sets of data presented in various ways, including in stem-and-leaf plots and multiple-bar graphs, by asking and answering questions about the data and drawing conclusions, then make convincing arguments and informed decisions	**D1.6** analyse different sets of data presented in various ways, including in stacked-bar 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				

GRADE 4/5 - STRAND D - DATA

D2. Probability - describe the likelihood that events will happen, and use that information to make predictions

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes and Assessments
Probability **D2.1** use mathematical language, including the terms "impossible", "unlikely", "equally likely", "likely", and "certain", to describe the likelihood of events happening, represent this likelihood on a probability line, and use it to make predictions and informed decisions	**Probability** **D2.1** use fractions to express the probability of events happening, represent this probability on a probability line, and use it to make predictions and informed decisions				
D2.2 make and test predictions about the likelihood that the mean, median, and mode(s) of a data set will be the same for data collected from different populations	**D2.2** determine and compare the theoretical and experimental probabilities of an event happening				

GRADE 4/5 - STRAND E - 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

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes and Assessments
Geometric Reasoning **E1.1** identify geometric properties of rectangles, including the number of right angles, parallel and perpendicular sides, and lines of symmetry	**Geometric Reasoning** **E1.1** identify geometric properties of triangles, and construct different types of triangles when given side or angle measurements				
	E1.2 identify and construct congruent triangles, rectangles, and parallelograms				
	E1.3 draw top, front, and side views of objects, and match drawings with objects				
Location and Movement **E1.2** plot and read coordinates in the first quadrant of a Cartesian plane, and describe the translations that move a point from one coordinate to another	**Location and Movement** **E1.4** plot and read coordinates in the first quadrant of a Cartesian plane using various scales, and describe the translations that move a point from one coordinate to another				
E1.3 describe and perform translations and reflections on a grid, and predict the results of these transformations	**E1.5** describe and perform translations, reflections, and rotations up to 180° on a grid, and predict the results of these transformations				

GRADE 4/5 - STRAND E - SPATIAL SENSE

E2. Measurement - compare, estimate, and determine measurements in various contexts

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes and Assessments
The Metric System **E2.1** explain the relationships between grams and kilograms as metric units of mass, and between litres and millilitres as metric units of capacity, and use benchmarks for these units to estimate mass and capacity	**The Metric System** **E2.1** use appropriate metric units to estimate and measure length, area, mass, and capacity				
E2.2 use metric prefixes to describe the relative size of different metric units, and choose appropriate units and tools to measure length, mass, and capacity	**E2.2** solve problems that involve converting larger metric units into smaller ones, and describe the base ten relationships among metric units				
Time **E2.3** solve problems involving elapsed time by applying the relationships between different units of time					
Angles **E2.4** identify angles and classify them as right, straight, acute, or obtuse	**Angles** **E2.3** compare angles and determine their relative size by matching them and by measuring them using appropriate non-standard units				
	E2.4 explain how protractors work, use them to measure and construct angles up to 180°, and use benchmark angles to estimate the size of other angles				
Area **E2.5** use the row and column structure of an array to measure the areas of rectangles and to show that the area of any rectangle can be found by multiplying its side lengths	**Area** **E2.5** use the area relationships among rectangles, parallelograms, and triangles to develop the formulas for the area of a parallelogram and the area of a triangle, and solve related problems				
E2.6 apply the formula for the area of a rectangle to find the unknown measurement when given two of the three	**E2.6** show that two-dimensional shapes with the same area can have different perimeters, and solve related problems				

GRADE 4/5 - STRAND F - FINANCIAL LITERACY

F1. Money and Finances - demonstrate the knowledge and skills needed to make informed financial decisions

SPECIFIC EXPECTATION GRADE 4	SPECIFIC EXPECTATION GRADE 5	P	T1	T2	Notes and Assessments
Money Concepts **F1.1** identify various methods of payment that can be used to purchase goods and services	**Money Concepts** **F1.1** describe several ways money can be transferred among individuals, organizations, and businesses				
F1.2 estimate and calculate the cost of transactions involving multiple items priced in whole-dollar amounts, not including sales tax, and the amount of change needed when payment is made in cash, using mental math	**F1.2** estimate and calculate the cost of transactions involving multiple items priced in dollars and cents, including sales tax, using various strategies				
Financial Management **F1.3** explain the concepts of spending, saving, earning, investing, and donating, and identify key factors to consider when making basic decisions related to each	**Financial Management** **F1.3** design sample basic budgets to manage finances for various earning and spending scenarios				
F1.4 explain the relationship between spending and saving, and describe how spending and saving behaviours may differ from one person to another	**F1.4** explain the concepts of credit and debt, and describe how financial decisions may be impacted by each				
Consumer and Civic Awareness **F1.5** describe some ways of determining whether something is reasonably priced and therefore a good purchase	**Consumer and Civic Awareness** **F1.5** calculate unit rates for various goods and services, and identify which rates offer the best value				
	F1.6 describe the types of taxes that are collected by the different levels of government in Canada, and explain how tax revenue is used to provide services in the community				