

Standards Correlation: Symphony Math[®] and the Ontario Curriculum

Ontario Curriculum		Symphony Math	
Reference	Description	Stage References	Concepts
Grade 1			
	Understand and use whole numbers to 50 (i.e., 0, 1, 2, 3,... 50)	1.1-1.4, 2.1-2.5, 5.1-5.3	Understand quantity, read, order, compare numbers, sequence, count forward and backward, find 1 more, 1 less, find more, less, same, compare quantities, use <, >, = symbols, use of visual models
Working with Numbers	Understand and use anchors of 5 and 10	Stage 3, 4.1- 4.4. 7.1-7.9	Add and subtract to 5, 10 as a unit, compose and decompose 5's, 10's, compose 10-plus, count forward and backward by 10s (decade numbers), use of visual models throughout
	Understand and use fractions, as follows: divide whole objects into equal-sized parts and identify the parts as unit fractions, e.g. 1/2, 1/3, 1/4, using various models, such as an area model, number line model, volume model, set model	14.1-14.2	Divide a whole into any number of equal parts, create unit fractions i.e. 1/2, 1/3, 1/4, use area model, number line model, fraction bar model
Recognizing and Applying Understanding of Number Properties	Recognize the property of zero in addition, i.e., $a + 0 = a$	3.5	Add 0, understand the role of zero when adding, use of visual models

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	Recognize the property of zero in subtraction, i.e., $a - 0 = a$	3.6	Subtract 0, understand the role of zero when subtracting
	Recognize the commutative property of addition, i.e. $a + b = b + a$	3.7	Apply addition combinations to experience addition is commutative
	Apply understanding of number properties in doing calculations	3.1-3.7, 5.1-5.3, 6.1-6.6, Checkpoint Stage 3, Extension Stage 3	Understand how numbers behave in operations, understand how math facts can be understood such as ie., '+ 1', '-1', + 10, 10+, understand principle of commutative property, apply number combinations from addition to solve related subtraction problems, use of parts to compose and decompose the whole, understand and apply comparative <, >, = signs. Visual model support throughout
Mastering Math Facts	Understand and recall math facts for addition to 10 and related subtraction	Mastery Rounds 1,2,3,4	Fact fluency with basic addition and subtraction to 5, addition and subtraction to 10; timed fluency rounds
Developing Mental Math Skills	Describe and use strategies to add and subtract whole numbers to 10	3.1-3.7, 4.1- 4.4,	Practice composing and decomposing parts and wholes, use of visual models throughout, visual justification of solutions throughout, apply number properties for efficient calculations
Developing Proficiency with Operations	Add and subtract whole numbers to 20	6.1-6.6, Mastery Round 5 & 6	Addition-missing result, missing change to 20, Subtraction-missing result, missing change to 20, 3-part addition and subtraction, Fact fluency with basic addition and subtraction facts to 20
	Recognize the inverse relationship between addition and subtraction (e.g., since $4 + 5 = 9$, then $9 - 5 = 4$) and apply this understanding in doing calculations	6.5	Fact families show how parts and wholes are related, inverse relationship between addition and subtraction explicit through use of visual models

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Grade 2			
Working with Numbers	Understand and use whole numbers to 100 (i.e., 0, 1, 2, 3, ...100)	7.1-7.7	Order and sequence decade numbers. Find, make; 10, '10-more' '10-less' than decade numbers. Combine parts of 1-digit numbers related to combining parts of 2-digit numbers up to and including 100. Explore magnitude of numbers to 100.
	Understand and use fractions, as follows: compose and decompose wholes using unit fractions, e.g., show that $\frac{9}{4}$ is the same as two wholes and one-fourth; compare and order unit fractions using various models	14.1-14.6, 20.1-20.4	Use visual models of fraction bars, area models, number lines to; create unit fractions, compose and decompose wholes by combining unit fractions, compare fractions, understand equivalent fractions, compose and decompose fractions greater than 1 whole, decompose mixed numbers
Recognizing and Applying Understanding of Number Properties	Apply understanding of number properties in doing calculations	Stages 6,7,8,9	Understand hierarchical groupings of 1s, 10s, 100s, related 1s, 10s, and 100s combinations, compare numbers with magnitudes to 100, understand and apply inverse relationship between addition and subtraction when operating on numbers, add and subtract 10s and multiples of 10
Mastering Math Facts	Understand and recall math facts for: addition to 20, and related subtraction	Mastery Round 5 & 6	Fact fluency with basic addition and subtraction facts to 20
Developing Mental Math Skills	Describe and use strategies to ◆ add and subtract whole numbers to 20	6.1-6.6, Checkpoint Stage 6	Use of related math facts, apply sense-making to add and subtract to 20, apply prior knowledge of how operations affect numbers to 20, use of visual models and justification throughout
Developing Proficiency with Operations	Add and subtract whole numbers to 100	8.1-8.8, Checkpoint Stage 8, Extension Stage 8	Compose and decompose numbers to 100. Visual models reinforce partitioning and place value. Decompose into tens and ones. Missing results and change, addition and subtraction, to 100

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	Recognize the inverse relationship between addition and subtraction and apply this understanding in doing calculations	6.5, 7.6, Extension Stages 6, 8	Visual models support inverse relationship i.e. 'fact families' in addition and subtraction. Related 1s and 10s when adding and subtracting.
	Represent multiplication as the combining of equal groups, that is, as repeated addition (e.g., use counters to show that 3 groups of 2 is equal to $2 + 2 + 2$ and to 3×2)	11.1- 11.3, 13.1-13.3	Introduction to multiplication, skip counting, adding equal addends, understanding number of groups and group size. Multiplication with unknown product, unknown group number, unknown group size. Use of visual models throughout.
	Represent division as the sharing of a quantity equally (e.g., "I can share 12 carrot sticks equally among 4 friends by giving each person 3 carrot sticks.")	13.4-13.6	Introduction to division, connection between multiplication and division

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Grade 3			
Working with Numbers	Understand and use whole numbers to 1000 (i.e., 0, 1, 2, 3, ... 1000)	9.1-9.8, 10.1-10.8	Introduction to 3-digit numbers and how hundreds, tens, and ones combine, count forward and backward by 100s, find '100 more and 100 less,' related 1s, 10s and 100s combinations, addition of 2-digit to 1-digit numbers
	Understand and use fractions, as follows: divide whole objects and sets of objects into equal parts, and identify parts using fractional names	14.1- 14.6, 17.1-17.6, Extension Stages 14, 17	Partition whole objects into equal parts and identify those fractional parts, understand fractions as a division, combine unit fractions, use of visual fraction models throughout
Apply Understanding of Number Properties	Recognize the commutative property of multiplication, i.e., $a \times b = b \times a$	13.7, 15.7, Extension Stage 13	Use visual models to understand commutative property of multiplication; build on knowledge of commutative property in addition, practice with commutative property including factors of 0 and 1
	Recognize the property of zero in multiplication, i.e., $a \times 0 = 0$	13.1-13.3, Mastery Rounds 9 & 10	Use of visual models to show relationship when multiplying with 0, practice multiplying with 0
	Recognize the property of one in multiplication, i.e., $a \times 1 = a$	13.1-13.3, Mastery Rounds 9 & 10	Use of visual models to show relationship when multiplying with 1, practice multiplying with 1
	Recognize the associative property of addition, i.e., $(a + b) + c = a + (b + c)$	10.5, Extension Stage 10	Visual models used to compose and decompose numbers to 1000, understand groupings of 1s, 10s, 100s in addition, apply flexibility with associative property when adding parts to make a whole
	Apply understanding of number properties in doing calculations	Stages 6-10, 12, 13, 15, 16	Apply associative, commutative, and distributive properties in addition, multiplication, and division calculations, visual models throughout, justifications provided throughout
Mastering Math Facts	Understand and recall math facts for: ◆ multiplication from 0×0 to 7×7 , and related division	Mastery Rounds 9 & 10	Fluency practice and timed multiplication and division facts to 30 and 100.

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Developing Mental Math Skills	Describe and use strategies to add and subtract two-digit whole numbers	8.1- 8.9, Mastery Rounds 7 & 8	Ten as a benchmark to compose and decompose numbers 10-100, place value missing result and change when adding and subtracting, parts-to-whole with 1s and 10s (addition and subtraction). Fact fluency to 200
	Describe and use strategies to multiply to 7×7	Mastery Rounds 9 & 10	Fluency practice and timed multiplication and division facts to 30 and 100.
	Describe and use strategies to divide to $49 \div 7$	Mastery Rounds 9 & 10	Fluency practice and timed multiplication and division facts to 30 and 100.
Developing Proficiency with Operations	Add and subtract whole numbers to 1000	10.1-10.7, 12.1- 12.5	Understand place value structure of tens and hundreds, apply when regrouping to add and subtract, add and subtract by 100, equalities with 10s and 1s, apply relationship to partition and find missing parts. ($60 + ? = 47 + 19$)
	Recognize the inverse relationship between addition and subtraction and apply this understanding in doing calculations	10.1-10.6, 12.1-12.5	Understand the connectivity between addition and subtraction. Compose tens first. Use visual models and justifications throughout.
	Recognize the inverse relationship between multiplication and division (e.g., since $4 \times 5 = 20$, then $20 \div 5 = 4$) and apply this understanding in doing calculations	15.1-15.6, Extension Stage 15	Visual models, story problems, justifications throughout, apply inverse relationship between multiplication and division when doing calculations

Ontario Curriculum		Symphony Math	
Reference	Description	Stage References	Concepts
Grade 4			
Working with Numbers	Understand and use whole numbers to 10 000 (i.e., 0, 1, 2, 3, ... 10 000)	9.1-9.8, 10.1 - 10.8, 21.5-21.8, Mastery Round 11	Recognize number magnitude, compose and decompose numbers in thousands, understand meaning of ones, tens, hundreds, and thousands, compare and order numbers. Use of number line to regroup and order numbers. Place value application to add 3- and 4-digit numbers. Apply properties to solve multiplication and division fluency facts to 10,000.
	Understand and use decimal numbers to tenths	16.1- 16.5, 19.1-19.3	Multiply and divide by 1, 10, 100. Understand fraction/decimal equivalency. Order decimal numbers.
	Understand and use fractions, as follows: compare and order fractions with like numerators by considering the size and the number of fractional parts or by using benchmarks of 0, and 1; demonstrate and explain the relationship between equivalent fractions, using concrete materials and drawings	14.5, 14.6, 17.1, 17.2, Checkpoints Stages 17, 20, Extensions Stage 14, 17	Compare and order fractions with like denominators, like numerators, use visual models including number line to place fractions between 0 and 1, find equivalencies. Partitioned wholes and unit fractions used to compare fractions with like numerators.
	Understand and use relationships between fractions and decimals to tenths	19.1-19.6	Multiply and divide by 1, 10, 100. Understand fraction/decimal equivalency, decimal notation, compare decimal numbers
Recognizing and Applying Understanding of Number Properties	Recognize the distributive property of multiplication over addition, i.e., $a \times (b + c) = (a \times b) + (a \times c)$	13.8, 15.8, Checkpoint Stage 15, Extension Stage 15	Use of visual models to show the distributive property, application and use of distributive property
	Apply understanding of number properties in doing calculations	13.7, 13.8, 15.7, 15.8	Apply understanding of commutative, associative, and distributive properties when operating on numbers

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Mastering Math Facts	Understand and recall math facts for multiplication from 0×0 to 10×10 , and related division	MR 5 & 6, 9 & 10	Mastery/fluency rounds from 0×0 to 10×10 and same for related division facts
Developing Mental Math Skills	Describe and use strategies to add and subtract two-digit numbers	12.1-12.5, 21.1-21.4, Extension Stage 12, Checkpoint Stage 12	Compose, decompose, recompose numbers to add and subtract, regroup using place value addition and subtraction, standard (vertically arranged) algorithm for addition and subtraction. Visual models, story problems, justifications throughout.
	Describe and use strategies to multiply to 10×10	Mastery Rounds 9 & 10	Timed fluency with multiplication to 100
	Describe and use strategies to divide to $100 \div 10$	Mastery Rounds 9 & 10	Timed fluency with division to 100
	Describe and use strategies to multiply whole numbers by 10, 100, and 1000, and divide by 10 and 100	16.1-16.5, Mastery Round 11	Visual models show how numbers change using related multiplication and division by 1, 10, 100, missing results, unknown factor/divisor
Developing Proficiency with Operations	Add and subtract whole numbers to 10,000	21.5- 21.8, Checkpoint Stage 21, Extension Stage 21	Apply structure of tens, hundreds and thousands to 'standard algorithm' for addition and subtraction, visual models, justification, story problems throughout
	Add and subtract decimal numbers to tenths	25.1, 25.2, Extension Stage 25, Checkpoint Stage 25	Use and apply visual models to add and subtract decimal numbers with an understanding of place value and number magnitude
	Recognize the inverse relationship between addition and subtraction and apply this understanding in doing calculations	12.1-12.5, 21.1-21.4	Compose tens first, use inverse relationship between addition and subtraction, find missing result and missing change, draw on properties to calculate
	Multiply two-digit whole numbers by one-digit whole numbers	16.1-2, 16.5, 22.1, 22.3	Understand how numbers grow multiplicatively, multiply by powers of 10, expanded mode multiplication

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	Divide two-digit whole numbers by one-digit whole numbers	16.3-4, 22.2	Understand multiplicative relationship between numbers and connectivity between multiplication and division, divide by powers of 10, expanded mode division
	Describe simple whole-number multiplicative relationships, including those involving unit rates	16.1-2, 16.5, 22.1, 22.3, Checkpoint Stage 22, Extension Stage 22	perform expanded mode multiplication using visual models, justifications throughout through model representations
	Recognize the inverse relationship between multiplication and division and apply this understanding in doing calculations	16.1-16.5, 22.1-22.5, Checkpoint Stage 22, Extension Stage 22	Recognize and apply inverse relationship between multiplication and division and apply when calculating

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Reference	Description	Stage References	Concepts
Grade 5			
Working with Numbers	Understand and use whole numbers to 100 000 (i.e., 0, 1, 2, 3, ... 100 000)	Stages 12 and 21	Recognize number magnitude, compose, decompose, and recompose numbers in ten-thousands, understand meaning of ones, tens, hundreds, and thousands, compare and order numbers. Use of number line to regroup and order numbers. Place value application with 5- 6-digit numbers. Apply properties to solve calculations in all operations, practice with fluency
	Understand and use decimal numbers to hundredths	Sage 24, Extension Stage 24	Understand the multiplicative relationship of the base 10 place value system
	Understand and use fractions, as follows: compare and order fractions with like denominators, including proper and improper fractions and mixed numbers; demonstrate and explain the concept of equivalent fractions, using concrete materials	Stage 20, Checkpoint Stage 20, Extension Stage 20	Use visual models to operate, compare, order, justify operations with fractions greater than 1. Compose and understand equivalencies with improper fractions and mixed numbers
	Understand and use relationships between fractions and their equivalent decimal forms	16.3-4, 24.1-24.3, 25.1	Multiply and divide with powers of 10, visual models of fraction/decimal equivalencies, move back and forth between fraction and decimal notation, use of number line to show equivalencies
Recognizing and Applying Understanding of Number Properties	Apply understanding of all number properties of addition and multiplication in doing calculations	Stages 21 and 22	Apply prior knowledge of properties of addition and multiplication when calculating
Mastering Math Facts	Continue to practice math facts and begin to apply knowledge automatically in doing calculations	Mastery Round 10,11, Checkpoint Stage 22, Extension Stage 22	Fluency with multiplication and division facts to 100 and with multiples of 10,100. Apply knowledge and fact fluency to calculations.

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Developing Mental Math Skills	Describe and use strategies to add, subtract, and multiply whole numbers	Stage 21, Stage 22	Standard algorithm: addition and subtraction; apply place value to calculate. Expanded mode multiplication and division; array model
	Describe and use strategies to multiply whole numbers to 10, 100, 1000, and 10 000, and divide decimal numbers by 10 and 100	Stage 22, 24.3, Mastery Rounds 9, 10, 11	Apply prior knowledge of multiplication by powers of 10 to calculations with multi-digits. Division of decimals by 10 and 100. Fluency practice with facts to 100; multiplication and division with multiples of 10s and 100s.
Developing Proficiency with Operations	Add and subtract decimal numbers to hundredths	25.1, 25.2	Compose, decompose, recompose decimal numbers, add and subtract decimal numbers to hundredths
	Recognize the inverse relationship between addition and subtraction and apply this understanding in doing calculations	Stage 21, Checkpoint Stage 21, Extension Stage 21	Recognize the inverse relationship between addition and subtraction and apply prior knowledge to calculating multi-digit addition and subtraction problems
	Multiply two-digit whole numbers by two-digit whole numbers	Stage 22.5	Use and apply distributive property and multiples of 10 and 100 to understand and calculate partial products when multiplying
	Divide three-digit whole numbers by one-digit whole numbers	22.4	Use area model to solve division problems, apply area model to calculate traditional division problems, use inverse relationship between multiplication and division
	Describe multiplicative relationships between quantities by using simple fractions and decimals	23.2-23.3, 24.2-24.3	Use prior knowledge of multiplicative relationship with the number line and fraction bar/area model to represent what happens when multiplying fractions, decimals, and whole numbers. The multiplicative relationship of the place value system clarified and emphasized with decimal multiplication and division.

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	Demonstrate an understanding of proportional reasoning using simple multiplicative relationships involving whole number rates	24.1-24.3, 25.1-25.3, Extension Stages 24, 25	Understand and use the structure of decimal numbers and foundational place value and apply to expanded notation to thousandths, build on prior knowledge of proportional reasoning with multiplication/division by powers of 10
	Recognize the inverse relationship between multiplication and division and apply this understanding in doing calculations	22.1-22.5, 24.1-24.3, 25.1-25.3, 26.1-26.4, Checkpoint & Extension Stages 22, 24,25, 26	Recognize and use the inverse relationship between multiplication and division when doing calculations with whole numbers, fractions, decimals