

C. ALGEBRA

By the end of each grade, students will:

Ontario Mathematics Curriculum Expectations, Grades 1 to 8, 2020

OVERALL EXPECTATION C1. identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts							
SPECIFIC EXPECTATIONS							
Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Patterns							
<p>C1.1 identify and describe the regularities in a variety of patterns, including patterns found in real-life contexts</p>	<p>C1.1 identify and describe a variety of patterns involving geometric designs, including patterns found in real-life contexts</p>	<p>C1.1 identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts</p>	<p>C1.1 identify and describe repeating and growing patterns, including patterns found in real-life contexts</p>	<p>C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts</p>	<p>C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and specify which growing patterns are linear</p>	<p>C1.1 identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing patterns on the basis of their constant rates and initial values</p>	<p>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</p>
<p>C1.2 create and translate patterns using movements, sounds, objects, shapes, letters, and numbers</p>	<p>C1.2 create and translate patterns using various representations, including shapes and numbers</p>	<p>C1.2 create and translate patterns that have repeating elements, movements, or operations using various representations, including shapes, numbers, and tables of values</p>	<p>C1.2 create and translate repeating and growing patterns using various representations, including tables of values and graphs</p>	<p>C1.2 create and translate growing and shrinking patterns using various representations, including tables of values and graphs</p>	<p>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</p>	<p>C1.2 create and translate repeating, growing, and shrinking patterns involving whole numbers and decimal numbers using various representations, including algebraic expressions and equations for linear growing patterns</p>	<p>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</p>

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

SPECIFIC EXPECTATIONS

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Patterns							
C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns	C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns represented with shapes and numbers	C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in patterns that have repeating elements, movements, or operations	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	C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating, growing, and shrinking patterns, and use algebraic representations of the pattern rules to solve for unknown values in linear 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 involving whole numbers and decimal numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing patterns	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
C1.4 create and describe patterns to illustrate relationships among whole numbers up to 50	C1.4 create and describe patterns to illustrate relationships among whole numbers up to 100	C1.4 create and describe patterns to illustrate relationships among whole numbers up to 1000	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	C1.4 create and describe patterns to illustrate relationships among whole numbers and decimal numbers	C1.4 create and describe patterns to illustrate relationships among integers	C1.4 create and describe patterns to illustrate relationships among rational numbers

OVERALL EXPECTATION C2. demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts

SPECIFIC EXPECTATIONS

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Variables				Variables and Expressions			
C2.1 identify quantities that can change and quantities that always remain the same in real-life contexts	C2.1 identify when symbols are being used as variables, and describe how they are being used	C2.1 describe how variables are used, and use them in various contexts as appropriate	C2.1 identify and use symbols as variables in expressions and equations	C2.1 translate among words, algebraic expressions, and visual representations that describe equivalent relationships	C2.1 add monomials with a degree of 1 that involve whole numbers, using tools	C2.1 add and subtract monomials with a degree of 1 that involve whole numbers, using tools	C2.1 add and subtract monomials with a degree of 1, and add binomials with a degree of 1 that involve integers, using tools
				C2.2 evaluate algebraic expressions that involve whole numbers	C2.2 evaluate algebraic expressions that involve whole numbers and decimal tenths	C2.2 evaluate algebraic expressions that involve whole numbers and decimal numbers	C2.2 evaluate algebraic expressions that involve rational numbers
Equalities and Inequalities							
C2.2 determine whether given pairs of addition and subtraction expressions are equivalent or not	C2.2 determine what needs to be added to or subtracted from addition and subtraction expressions to make them equivalent	C2.2 determine whether given sets of addition, subtraction, multiplication, and division expressions are equivalent or not	C2.2 solve equations that involve whole numbers up to 50 in various contexts, and verify solutions	C2.3 solve equations that involve whole numbers up to 100 in various contexts, and verify solutions	C2.3 solve equations that involve multiple terms and whole numbers in various contexts, and verify solutions	C2.3 solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions	C2.3 solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions
C2.3 identify and use equivalent relationships for whole numbers up to 50, in various contexts	C2.3 identify and use equivalent relationships for whole numbers up to 100, in various contexts	C2.3 identify and use equivalent relationships for whole numbers up to 1000, in various contexts	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	C2.4 solve inequalities that involve two operations and whole numbers up to 100, and verify and graph the solutions	C2.4 solve inequalities that involve multiple terms and whole numbers, and verify and graph the solutions	C2.4 solve inequalities that involve integers, and verify and graph the solutions

OVERALL EXPECTATION C3. solve problems and create computational representations of mathematical situations using coding concepts and skills

SPECIFIC EXPECTATIONS

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Coding Skills							
C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential events	C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential and concurrent events	C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves sequential, concurrent, and repeating events	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	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	C3.1 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	C3.1 solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves events influenced by a defined count and/or sub-program and other control structures	C3.1 solve problems and create computational representations of mathematical situations by writing and executing code that involves the analysis of data in order to inform and communicate decisions
C3.2 read and alter existing code, including code that involves sequential events, and describe how changes to the code affect the outcomes	C3.2 read and alter existing code, including code that involves sequential and concurrent events, and describe how changes to the code affect the outcomes	C3.2 read and alter existing code, including code that involves sequential, concurrent, and repeating events, and describe how changes to the code affect the outcomes	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	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	C3.2 read and alter existing code, including code that involves events influenced by a defined count and/or sub-program and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code	C3.2 read and alter existing code involving the analysis of data in order to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code

OVERALL EXPECTATION C4. 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.

*Read more about the mathematical modelling process.