

# Mathletics

## Quebec Progression of Learning

### Activities (Courses) and Skill Quests



**Grades 7-8**

July, 2025

**Mathletics**

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Quebec Progression of Learning  
Activities (Courses) & Skill Quests July,  
2025

<b>Grade 7 .....</b>	<b>4</b>
<b>1 Arithmetic .....</b>	<b>4</b>
1.1 Understanding real numbers .....	4
1.2 Understanding operations involving real numbers .....	8
1.3 Operations involving real numbers .....	9
1.4 Understanding and analyzing proportional situations .....	13
<b>2 Algebra .....</b>	<b>15</b>
2.1 Understanding and manipulating algebraic expressions .....	15
2.2 Understanding dependency relationships .....	20
<b>3 Probability .....</b>	<b>21</b>
3.1 Understanding data from random experiments .....	21
<b>4 Statistics .....</b>	<b>24</b>
4.1 Analyzing and making decisions about one- or two-variable distributions, using statistical tools .....	24
<b>5 Geometry .....</b>	<b>27</b>
5.1 Spatial sense and analyzing situations involving geometric figures .....	27
5.2 Analyzing situations involving measurements .....	31
<b>6 Analytic Geometry .....</b>	<b>37</b>
6.1 Analyzing situations using analytic geometry .....	37
<b>Grade 8 .....</b>	<b>38</b>
<b>1 Arithmetic .....</b>	<b>38</b>
1.1 Understanding real numbers .....	38
1.2 Operations involving real numbers .....	39
1.3 Understanding and analyzing proportional situations .....	40
<b>2 Algebra .....</b>	<b>43</b>
2.1 Understanding and manipulating algebraic expressions .....	43
2.2 Understanding dependency relationships .....	47
<b>3 Probability .....</b>	<b>48</b>
3.1 Understanding data from random experiments .....	48
<b>4 Statistics .....</b>	<b>50</b>
4.1 Analyzing and making decisions about one- or two-variable distributions, using statistical tools .....	50
<b>5 Geometry .....</b>	<b>53</b>

5.1 Spatial sense and analyzing situations involving geometric figures.....	53
5.2 Analyzing situations involving measurements .....	56
<b>6 Analytic Geometry .....</b>	<b>61</b>
6.1 Analyzing situations using analytic geometry .....	61

# Grade 7

## 1 Arithmetic

### 1.1 Understanding real numbers

7.AR.1.1a	
Natural numbers less than 1 000 000. a. Reads and writes any natural number	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Read & write numbers of any size	Reading & writing numbers of any size

7.AR.1.1b	
Natural numbers less than 1 000 000. b. Represents natural numbers in different ways	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.AR.1.1c	
Natural numbers less than 1 000 000. c. Composes and decomposes a natural number in a variety of ways and identifies equivalent expressions	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Compose & decompose numbers	Using place value to partition numbers of any size

7.AR.1.1d	
Natural numbers less than 1 000 000. d. Approximates a natural number	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Round numbers	Rounding numbers

<b>7.AR.1.1e</b>	
Natural numbers less than 1 000 000. e. Compares natural numbers or arranges natural numbers in increasing or decreasing order	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Compare & order numbers	Comparing & ordering numbers

<b>7.AR.1.2b</b>	
Fractions. b. Identifies the different meanings of fractions: part of a whole, division, ratio, operator, measurement	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Meanings of fractions	Fractions as operators
	Fractions as division

<b>7.AR.1.2c</b>	
Fractions. c. Verifies whether two fractions are equivalent	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Equivalent fractions	Finding equivalent fractions

<b>7.AR.1.3a</b>	
Decimals up to thousandths. a. Represents decimals in a variety of ways (using objects or drawings) and identifies equivalent representations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Represent decimals	Locating decimals on a number line

<b>7.AR.1.3e</b>	
Decimals up to thousandths. e. Compares numbers written in decimal notation or arranges them in increasing or decreasing order	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Order terminating & repeating decimals	Ordering terminating & repeating decimals

<b>7.AR.1.4a</b>	
Integers. a. Represents integers in a variety of ways (using objects or drawings)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Represent integers	Locating integers on a number line

<b>7.AR.1.4b</b>	
Integers. b. Reads and writes integers	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Read & write integers	Reading & writing integers

<b>7.AR.1.4c</b>	
Integers. c. Compares integers or arranges integers in increasing or decreasing order	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Compare & order integers	Comparing & ordering integers

<b>7.AR.1.6</b>	
Represents, reads and writes numbers written in fractional or decimal notation	
Course Topics	Activities
Number: Decimals	Decimal Place Value
Topics	Skill Quests
Teacher directed	

<b>7.AR.1.7</b>	
Approximates, in various contexts, the numbers under study	
Course Topics	Activities
Number: Decimals	Rounding Decimals 1
Topics	Skill Quests
Teacher directed	

<b>7.AR.1.10</b>	
Defines the concept absolute value in context	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Absolute value	Understanding absolute value

<b>7.AR.1.11b</b> Represents and writes. b. squares and square roots	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Squares & square roots	Squares & square roots

<b>7.AR.1.11c</b> Represents and writes. c. numbers in exponential notation (integral exponent)	
Course Topics	Activities
Number: Integers	Exponent Notation
	Prime Factoring: Exponents
Topics	Skill Quests
Write numbers in exponential notation	Writing numbers in exponential notation

<b>7.AR.1.13</b> Estimates the order of magnitude of a real number in different contexts	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.AR.1.15a</b> Compares and arranges in order a. numbers written in fractional or decimal notation	
Course Topics	Activities
Number: Integers	Comparing Numbers
Number: Decimals	Decimal Order 1
	Comparing Decimals 2
Number: Fraction and Percent	Ordering Fractions
Topics	Skill Quests
Compare & order fractions & decimals	Comparing & ordering fractions & decimals

<b>7.AR.1.15b</b> Compares and arranges in order. b. numbers expressed in different ways (fractional, decimal, exponential [integral exponent], percentage, square root)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Compare/order numbers in different forms	Compare & order fractions, decimals & percentages



## 1.2 Understanding operations involving real numbers

7.AR.2.1b	
Natural numbers less than 1 000 000. b. Uses objects, diagrams or equations to represent a situation and, conversely, describes a situation represented by objects, diagrams or equations (use of different meanings of the four operations)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Write equations to represent a situation	Writing equations to represent a situation

7.AR.2.1c	
Natural numbers less than 1 000 000. c. Establishes equality relations between numerical expressions (e.g. $3 + 2 = 6 - 1$ )	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Equality relations	Understanding equality

7.AR.2.1d	
Natural numbers less than 1 000 000. d. Determines numerical equivalencies using relationships between operations, the commutative and associative properties of addition and multiplication, the distributive property of multiplication over addition or subtraction	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Addition & multiplication properties	The commutative & associative properties
	The distributive property

7.AR.2.2b	
Fractions b. Uses an operation to represent a situation (use of different meanings of operations)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.AR.2.5	
Expresses numbers in a variety of ways (fractional, decimal percentage notation)	
Course Topics	Activities
Number: Fraction and Percent	Equivalent Fractions
	Simplifying Fractions
Topics	Skill Quests
Teacher directed	

<b>7.AR.2.6</b>	
Represents, reads and writes numbers written in fractional or decimal notation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.AR.2.7</b>	
Approximates, in various contexts, the numbers under study (e.g. estimates, rounds off, truncates)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.AR.2.15a</b>	
Compares and arranges in order a. numbers written in fractional or decimal notation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

### 1.3 Operations involving real numbers

<b>7.AR.3.2b</b>	
Fractions (using objects or diagrams) b. Reduces a fraction to its simplest form	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Simplify fractions	Simplifying fractions

<b>7.AR.3.2c</b>	
Fractions (using objects or diagrams) c. Adds and subtracts fractions when the denominator of one fraction is a multiple of the other fraction	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Add & subtract fractions	Adding & subtracting fractions

7.AR.3.2d	
Fractions (using objects or diagrams) d. Multiplies a natural number by a fraction and a fraction by a natural number	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Multiply fractions & natural numbers	Multiplying fractions & natural numbers

7.AR.3.4a	
Properties of divisibility. a. Determines the divisibility of a number by 2, 3, 4, 5, 6, 8, 9 and 10	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Divisibility	Divisibility

7.AR.3.4b	
Properties of divisibility. b. Uses, in different contexts, the properties of divisibility: 2, 3, 4, 5 and 10	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.AR.3.5	
Approximates the result of an operation or sequence of operations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.AR.3.6	
Mentally computes the four operations, especially with numbers written in decimal notation, using equivalent ways of writing numbers and the properties of operations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Operations with decimals	Adding & subtracting decimals, mental strategies
	Multiplying & dividing decimals, mental strategies

**7.AR.3.7a**

Computes, in writing, the four operations with numbers that are easy to work with (including large numbers), using equivalent ways of writing numbers and the properties of operations a. numbers written in decimal notation, using rules of signs

Course Topics	Activities
Number: Decimals	Decimal by Whole Number
	Adding and Subtracting Decimals
	Decimal by Decimal
	Divide Decimal by Whole Number
	Divide Decimal by Decimal
Number: Integers	Integers: Order of Operations
	Exponent Form to Numbers
Topics	Skill Quests
Computation with decimals	Adding & subtracting positive & negative decimals
	Multiplying & dividing decimals, algorithm

**7.AR.3.7b**

Computes, in writing, the four operations with numbers that are easy to work with (including large numbers), using equivalent ways of writing numbers and the properties of operations b. positive numbers written in fractional notation, with or without the use of objects or diagrams

Course Topics	Activities
Number: Fraction and Percent	Add Like Fractions
	Subtract Like Fractions
	Add Unlike Fractions
	Subtract Unlike Fractions
	Multiply Two Fractions 1
	Divide Fractions by Fractions 1
	Divide Fractions by Fractions 2
	Multiply Two Fractions 2
Topics	Skill Quests
Computation with fractions	Adding fractions & mixed numbers
	Subtracting fractions & mixed numbers
	Multiplying fractions & mixed numbers
	Dividing fractions & mixed numbers

**7.AR.3.8**

Computes, in writing, sequences of operations (numbers written in decimal notation) in accordance with the order of operations, using equivalent ways of writing numbers and the properties of operations (with no more than two levels of parentheses)

Course Topics	Activities
Number: Integers	Integers: Add and Subtract
	Integers: Multiply and Divide
	Prime Factoring
	Prime Factoring: Exponents
Topics	Skill Quests
Order of operations, decimals	Add & subtract +/- decimals, order of operations

7.AR.3.9	
Computes, using a calculator, operations and sequences of operations in accordance with the order of operations	
Course Topics	Activities
Number: Integers	Exponent Form to Numbers
Topics	Skill Quests
Teacher directed	

7.AR.3.10	
Switches, as needed, from one way of writing numbers to another: from fractional to percentage notation, from decimal to fractional notation, from decimal to percentage notation, and vice versa	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Convert between fractions & decimals	Converting between fractions & decimals
	Converting between decimals & percentages
	Converting between fractions & percentages
	Converting fractions, decimals & percentages

7.AR.3.11	
Switches, as needed, from one way of writing numbers to another	
Course Topics	Activities
Number: Decimals	Decimals to Fractions 1
	Percents and Decimals
	Decimals to Fractions 2
Number: Fraction and Percent	Fractions to Decimals 1
	Converting Mixed and Improper
	Percents to Fractions
Topics	Skill Quests
Teacher directed	

7.AR.3.13	
Decomposes a natural number into prime factors	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Express numbers as prime factors	Expressing numbers as prime factors

## 1.4 Understanding and analyzing proportional situations

<b>7.AR.4.1a</b>	
Calculates a. a certain percentage of a number	
Course Topics	Activities
Number: Fraction and Percent	Calculating Percentages
Topics	Skill Quests
Calculate with percentages	Calculating with percentages

<b>7.AR.4.1b</b>	
Calculates b. the value corresponding to 100 per cent	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Solve problems involving finding 100%	Solving problems involving finding 100%

<b>7.AR.4.2</b>	
Recognizes ratios and rates	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.AR.4.3</b>	
Interprets ratios and rates	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Interpret ratios & rates	Interpreting ratios & rates

<b>7.AR.4.4</b>	
Describes the effect of changing a term in a ratio or rate	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.AR.4.5a</b>	
Compares a. ratios and rates qualitatively (equivalent rates and ratios, unit rate)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.AR.4.5b</b>	
Compares b. ratios and rates quantitatively (equivalent rates and ratios, unit rate)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Compare ratios & rates	Comparing ratios & rates

<b>7.AR.4.6</b>	
Translates a situation using a ratio or rate	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Translate situations, ratios & rates	Translating situations using ratios & rates

<b>7.AR.4.7</b>	
Recognizes a proportional situation using the context, a table of values or a graph	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Identify proportional relationships	Identifying proportional relationships

<b>7.AR.4.8</b>	
Represents or interprets a proportional situation using a graph, a table of values or a proportion	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Constant of proportionality, table	Constant of proportionality, table

<b>7.AR.4.9</b>	
Solves proportional situations (direct or inverse variation) by using different strategies (e.g. unit-rate method, factor of change, proportionality ratio, additive procedure, constant product [inverse variation])	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Solve problems involving proportions	Solving problems involving proportions

## 2 Algebra

### 2.1 Understanding and manipulating algebraic expressions

7.AL.1.A1	
Algebraic expressions. 1. Describes, using his/her own words and mathematical language, numerical patterns	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Describe patterns algebraically	Describing patterns algebraically

7.AL.1.A2	
Algebraic expressions. 2. Describes, using his/her own words and mathematical language, series of numbers and family of operations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Recognize geometric sequences	Recognizing geometric sequences

7.AL.1.A3	
Algebraic expressions. 3. Adds new terms to a series when the first three terms or more are given	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Find the nth term of linear sequences	Finding the nth term of linear sequences

7.AL.1.A4	
Algebraic expressions. 4. Describes the role of components of algebraic expressions: a. unknown; b. variable, constant; c. parameter; d. coefficient, degree, term, constant term, like terms	
Course Topics	Activities
Algebra Skills	Recognizing Like Terms
Topics	Skill Quests
Components of algebraic expressions	Identifying components of algebraic expressions

7.AL.1.A5	
Algebraic expressions. 5. Constructs an algebraic expression using a register (type) of representation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Write algebraic expressions	Writing algebraic expressions



<b>7.AL.1.A6</b>	
Algebraic expressions. 6. Interprets an algebraic expression in light of the context	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Use & interpret algebraic notation	Using & interpreting algebraic notation

<b>7.AL.1.A7</b>	
Algebraic expressions. 7. Recognizes or constructs equivalent algebraic expressions	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Equivalent algebraic expressions	Equivalent algebraic expressions

<b>7.AL.1.A8a</b>	
Algebraic expressions. 8. Recognizes or constructs a. equalities and equations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Write equations	Writing equations

<b>7.AL.1.B1</b>	
Manipulating algebraic expressions. 1. Calculates the numeric value of an algebraic expression.	
Course Topics	Activities
Algebra Skills	Simple Substitution 1
	Simple Substitution 2
Topics	Skill Quests
Evaluate algebraic expressions	Evaluating algebraic expressions

<b>7.AL.1.B2</b>	
Manipulating algebraic expressions. 2. Performs the following operations on algebraic expressions, with or without objects or diagrams: addition and subtraction, multiplication and division by a constant, multiplication of first-degree monomials	
Course Topics	Activities
Algebra Skills	Like Terms: Add, Subtract
	Algebraic Multiplication
	Exponent Notation and Algebra
	Multiplication with Exponents
Topics	Skill Quests
Simplify algebraic expressions	Simplifying algebraic expressions, 4 operations

7.AL.1.B3	
Manipulating algebraic expressions. 3. Factors out the common factor in numerical expressions (distributive property of multiplication over addition or subtraction)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
The distributive property	Using the distributive property

7.AL.1.C1	
Analyzing situations using equations or inequalities. 1. Recognizes whether a situation can be translated by a. an equation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.AL.1.C2	
Analyzing situations using equations or inequalities. 2. Recognizes or constructs a. relations or formulas	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Understand formulas & equations	Understanding formulas & equations

7.AL.1.C3	
Analyzing situations using equations or inequalities. 3. Manipulates relations or formulas (e.g. isolates an element)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Manipulate formulas & equations	Manipulating formulas & equations

7.AL.1.C4a	
Analyzing situations using equations or inequalities. 4. Represents a situation using: a. a first-degree equation with one unknown	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Write & solve equations	Writing & solving equations

7.AL.1.C5a	
Analyzing situations using equations or inequalities. 5. Represents: a. an equation using another register (type) of representation, if necessary	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.AL.1.C6	
Analyzing situations using equations or inequalities. 6. Determines the missing term in an equation (relations between operations)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Solve 1-step equations	Solving 1-step equations

7.AL.1.C7	
Analyzing situations using equations or inequalities. 7. Transforms arithmetic equalities and equations to maintain equivalence (properties and rules for transforming equalities) and justifies the steps followed, if necessary	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.AL.1.C9	
Analyzing situations using equations or inequalities. 9. Uses different methods to solve first-degree equations with one unknown of the form $ax + b = cx + d$ : trial and error, drawings, arithmetic methods (inverse or equivalent operations), algebraic methods (balancing equations or hidden terms)	
Course Topics	Activities
Algebra Skills	Equations with Decimals
Topics	Skill Quests
Teacher directed	

7.AL.1.C13	
Analyzing situations using equations or inequalities. 13. Validates a solution, with or without technological tools, by substitution	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Validate solutions using substitution	Validating solutions using substitution

<b>7.AL.1.C15</b> Analyzing situations using equations or inequalities. 15. Interprets solutions or makes decisions, if necessary, depending on the context	
<b>Course Topics</b>	<b>Activities</b>
Teacher directed	
<b>Topics</b>	<b>Skill Quests</b>
Teacher directed	

## 2.2 Understanding dependency relationships

<b>7.AL.2.A2</b>	
Relations, functions and inverses. 2. Analyzes situations using different registers (types) of representation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.AL.2.A3</b>	
Relations, functions and inverses. 3. Represents a situation generally using a graph	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Graph discrete linear relationships	Graphing discrete linear relationships

### 3 Probability

#### 3.1 Understanding data from random experiments

<b>7.P.A3a</b>	
Processing data from random experiments. 3. In activities involving chance a. recognizes variability in possible outcomes (uncertainty)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Describe variability in outcomes	Describing variability in outcomes

<b>7.P.A3b</b>	
Processing data from random experiments. 3. In activities involving chance b. recognizes equiprobability (e.g. quantity of objects, symmetry of an object such as a cube)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Recognize equiprobability	Recognizing equiprobability

<b>7.P.A3c</b>	
Processing data from random experiments. 3. In activities involving chance c. becomes aware of the independence of events (e.g. rolling dice, tossing a coin, drawing lots)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Independent events	Independent events

<b>7.P.A5</b>	
Processing data from random experiments. 5. Compares the outcomes of a random experiment with known theoretical probabilities	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Compare outcomes	Comparing outcomes with theoretical probability

<b>7.P.A7</b>	
Processing data from random experiments. 7. Conducts or simulates random experiments involving one or more steps (with or without replacement, with or without order)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Create & conduct chance experiments	Creating & conducting chance experiments

<b>7.P.A9b</b>	
Processing data from random experiments. 9. Enumerates the possible outcomes of a random experiment using b. networks, tables, diagrams, Venn diagrams	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.P.A10</b>	
Processing data from random experiments. 10. Defines the sample space of a random experiment	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Identify the sample space	Identifying the sample space

<b>7.P.A11</b>	
Processing data from random experiments. 11. Recognizes certain, probable, impossible, simple, complementary, compatible, incompatible, dependent, independents events	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Recognize events	Recognizing events

<b>7.P.A13</b>	
Processing data from random experiments. 13. Uses fractions, decimals or percentages to quantify a probability	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Quantify probability	Probability: decimals, fractions, percentages

<b>7.P.B3</b>	
Analyzing probability situations. 3. Distinguishes between theoretical and experimental probability	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Theoretical & experimental probability	Theoretical & experimental probability

<b>7.P.B4</b>	
Analyzing probability situations. 4. Calculates the probability of an event	
<b>Course Topics</b>	<b>Activities</b>
Teacher directed	
<b>Topics</b>	<b>Skill Quests</b>
Calculate the probability of an event	Calculating the probability of an event

<b>7.P.B9</b>	
Analyzing probability situations. 9. Interprets probabilities and makes appropriate decisions	
<b>Course Topics</b>	<b>Activities</b>
Teacher directed	
<b>Topics</b>	<b>Skill Quests</b>
Teacher directed	



## 4 Statistics

### 4.1 Analyzing and making decisions about one- or two-variable distributions, using statistical tools

<b>7.S.A1b</b> One-variable distributions. 1. Conducts a survey or a census b. Chooses a sampling method: i. simple random, systematic	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.S.A1c</b> One-variable distributions. 1. Conducts a survey or a census c. Chooses a representative sample	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.S.A2</b> One-variable distributions. 2. Recognizes possible sources of bias	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.S.A4</b> One-variable distributions. 4. Distinguishes different types of statistical variables: qualitative, discrete or continuous quantitative	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.S.A6b</b>	
One-variable distributions. 6. Organizes and presents data using b. a table presenting variables or frequencies, or using a circular graph	
Course Topics	Activities
Statistical Data	Interpreting Tables
	Sector Graph Calculations
	Pie Chart Calculations
	Frequency Histograms
	Creating a Sector Graph
	Sector Graph Angles
Topics	Skill Quests
Teacher directed	

<b>7.S.A7</b>	
One-variable distributions. 7. Compares one-variable distributions	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.S.A8</b>	
One-variable distributions. 8. Understands and calculates the arithmetic mean	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Calculate the mean	Calculating the mean

<b>7.S.A9</b>	
One-variable distributions. 9. Describes the concept of arithmetic mean (levelling or balance point)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.S.A10</b>	
One-variable distributions. 10. Calculates and interprets an arithmetic mean	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.S.A11b</b>	
One-variable distributions. 11. Determines and interprets b. measures of dispersion: i. range	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Determine the range	Determining the range

<b>7.S.A11c</b>	
One-variable distributions. 11. Determines and interprets c. measures of position: i. minimum, maximum	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.S.A12</b>	
One-variable distributions. 12. Chooses the appropriate statistical measures for a given situation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

## 5 Geometry

### 5.1 Spatial sense and analyzing situations involving geometric figures

<b>7.G.1.A1</b>	
Plane figures. 1. Describes convex and nonconvex polygons	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Convex & nonconvex polygons	Convex & nonconvex polygons

<b>7.G.1.A2</b>	
Plane figures. 2. Describes and classifies quadrilaterals	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Classify/identify special quadrilaterals	Classifying & identifying special quadrilaterals

<b>7.G.1.A3</b>	
Plane figures. 3. Describes and classifies triangles	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Classify triangles	Classifying triangles

<b>7.G.1.A4</b>	
Plane figures. 4. Describes circles: radius, diameter, circumference, central angle	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Describe circles	Describing circles

<b>7.G.1.A5</b>	
Plane figures. 5. Recognizes and names regular convex polygons	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.A6</b>	
Plane figures. 6. Decomposes plane figures into circles (sectors), triangles or quadrilaterals	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.A7</b>	
Plane figures. 7. Describes circles and sectors	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.A8a</b>	
Plane figures. 8. Recognizes and draws main segments and lines. a. diagonal, altitude, median, perpendicular bisector, bisector, apothem, radius, diameter, chord	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.A9</b>	
Plane figures. 9. Identifies the properties of plane figures using geometric transformations and constructions	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.A10</b>	
Plane figures. 10. Justifies statements using definitions or properties of plane figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.B2</b>	
Solids. 2. Determines the possible nets of a solid	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Connect solids with their nets	Connecting solids with their nets

<b>7.G.1.B3</b>	
Solids. 3. Names the solid corresponding to a net	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.B4b</b>	
Solids. 4. Describes solids: b. altitude, apothem, lateral face	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.B6a</b>	
Solids. 6. Recognizes solids that can be split into a. right prisms, right cylinders, right pyramids	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.C2</b>	
Geometric constructions and transformations in the Euclidian plane 2. Identifies properties and invariants resulting from geometric constructions and transformations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.C3</b>	
Geometric constructions and transformations in the Euclidian plane 3. Identifies congruence (translation, rotation and reflection) between two figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Congruence	Congruence

<b>7.G.1.C4</b>	
Geometric constructions and transformations in the Euclidian plane 4. Constructs the image of a figure under a translation, rotation and reflection	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Plot transformations, Cartesian plane	Plotting transformations, Cartesian plane

<b>7.G.1.C5</b>	
Geometric constructions and transformations in the Euclidian plane 5. Recognizes dilatation with a positive scale factor	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.1.C6</b>	
Geometric constructions and transformations in the Euclidian plane 6. Constructs the image of a figure under a dilatation with a positive scale factor	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Dilations	Dilations

<b>7.G.1.D1</b>	
Congruent, similar or equivalent figures 1. Identifies congruent figures in frieze patterns and tessellations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Tessellations	Tessellations

<b>7.G.1.D2</b>	
Congruent, similar or equivalent figures 2. Recognizes congruent or similar figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.G.1.D3	
Congruent, similar or equivalent figures 3. Recognizes the geometric transformation(s) linking a figure and its image	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.G.1.D4	
Congruent, similar or equivalent figures 4. Determines the properties and invariants of congruent or similar figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

7.G.1.D8	
Congruent, similar or equivalent figures 8. Justifies statements using definitions or properties of congruent, similar or equivalent figures, depending on the cycle and year	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

## 5.2 Analyzing situations involving measurements

7.G.2.A1	
Mass. 1. Chooses the appropriate unit of mass for the context	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Choose appropriate units to measure mass	Choosing appropriate units to measure mass

7.G.2.A3	
Mass. 3. Establishes relationships between units of mass	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Convert related standard units of mass	Converting between related standard units of mass



<b>7.G.2.B3</b>	
Time. 3. Establishes relationships between units of time: second, minute, hour, day, daily cycle, weekly cycle, yearly cycle	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Convert related standard units of time	Converting between related standard units of time

<b>7.G.2.B4</b>	
Time. 4. Distinguishes between duration and position in time	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.2.C2</b>	
Angles. 2. Estimates and determines the degree measure of angles	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Measure angles	Measuring angles

<b>7.G.2.C3</b>	
Angles. 3. Describes the characteristics of different types of angles: complementary, supplementary, adjacent, vertically opposite, alternate interior, alternate exterior and corresponding	
Course Topics	Activities
Geometric Figures	Classifying Angles
	Parallel Lines
Topics	Skill Quests
Define angles	Complementary, supplementary & adjacent angles

<b>7.G.2.C4</b>	
Angles. 4. Determines measures of angles using the properties of the following angles: complementary, supplementary, vertically opposite, alternate interior, alternate exterior and corresponding	
Course Topics	Activities
Geometric Figures	Equal, Complement, or Supplement?
	Angles and Parallel Lines
Topics	Skill Quests
Measures of angles	Angle pairs on parallel lines
	Calculating complementary & supplementary angles

<b>7.G.2.C5a</b>	
Angles. 5. Finds unknown measurements using the properties of figures and relations a. measures of angles in a triangle	
Course Topics	Activities
Geometric Figures	Angle Measures in a Triangle
	Angle Sum of a Triangle
	Exterior Angles of a Triangle
	Angle Sum of a Quadrilateral
Topics	Skill Quests
Angles of a triangle	Calculating angles of a triangle

<b>7.G.2.C5b</b>	
Angles. 5. Finds unknown measurements using the properties of figures and relations b. degree measures of central angles and arcs	
Course Topics	Activities
Geometric Figures	Angles in a Revolution
Topics	Skill Quests
Measures of central angles	Measures of central angles

<b>7.G.2.C8</b>	
Angles. 8. Justifies statements using definitions or properties associated with angles and their measures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.2.D1</b>	
Length. 1. Chooses the appropriate unit of length for the context	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Choose units to measure the length	Choosing appropriate units to measure the length

<b>7.G.2.D3b</b>	
Length. 3. Establishes relationships between b. measures of length of the international system (SI)	
Course Topics	Activities
Measurement	Customary Units of Length
Topics	Skill Quests
Teacher directed	

<b>7.G.2.D4</b>	
Length. 4. Constructs relations that can be used to calculate the perimeter or circumference of figures	
Course Topics	Activities
Measurement	Perimeter: Squares and Rectangles
	Perimeter: Composite Shapes
Topics	Skill Quests
Teacher directed	

<b>7.G.2.D5a</b>	
Length. 5. Finds the following unknown measurements, using properties of figures and relations a. perimeter of plane figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Find the perimeter of plane figures	Finding the perimeter of plane figures

<b>7.G.2.D5b</b>	
Length. 5. Finds the following unknown measurements, using properties of figures and relations b. a segment in a plane figure, circumference, radius, diameter, length of an arc, a segment resulting from an isometry or a similarity transformation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Find a segment in a plane figure	Finding the length of segment after transformation

<b>7.G.2.D6</b>	
Length. 6. Justifies statements concerning measures of length	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.2.E1</b>	
Area. 1. Chooses the appropriate unit of area for the context	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Choose appropriate units to measure area	Choosing an appropriate unit to measure area

<b>7.G.2.E3</b>	
Area. 3. Establishes relationships between SI units of area	
Course Topics	Activities
Measurement	Converting Units of Area
Topics	Skill Quests
Convert related standard units of area	Converting between related standard units of area

<b>7.G.2.E4</b>	
Area. 4. Constructs relations that can be used to calculate the area of plane figures: quadrilateral, triangle, circle (sectors)	
Course Topics	Activities
Measurement	Area: Squares and Rectangles
	Area: Triangles
	Area: Right Angled Triangles
Topics	Skill Quests
Teacher directed	

<b>7.G.2.E6a</b>	
Area. 6. Finds unknown measurements, using properties of figures and relations a. area of circles and sectors	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Find the area of a circle	Finding the area of a circle

<b>7.G.2.E6b</b>	
Area. 6. Finds unknown measurements, using properties of figures and relations b. area of figures that can be split into circles (sectors), triangles or quadrilaterals	
Course Topics	Activities
Measurement	Area: Compound Figures
Topics	Skill Quests
Find the area of composite shapes	Finding the area of composite shapes

<b>7.G.2.E7</b>	
Area. 7. Justifies statements concerning measures of area	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.G.2.F1</b>	
Volume. 1. Chooses the appropriate unit of volume for the context	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Choose appropriate units for volume	Choosing appropriate units to measure volume

<b>7.G.2.F2</b>	
Volume. 2. Estimates and measures volume or capacity using conventional units: cubic centimetre, cubic decimetre, cubic metre, millilitre, litre	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Measure volume, cubic-centimetre blocks	Measuring volume with cubic-centimetre blocks

<b>7.G.2.F4</b>	
Volume. 4. Establishes relationships between a. capacity units : millilitre, litre	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Convert related units of capacity	Converting between related units of capacity

<b>7.G.2.G1</b>	
Metric or trigonometric relations 1. Determines, through exploration or deduction, different metric relations associated with plane figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

## 6 Analytic Geometry

### 6.1 Analyzing situations using analytic geometry

<b>7.AG.A1</b>	
Locating. 1. Locates objects/numbers on an axis, based on the types of numbers studied	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>7.AG.A2</b>	
Locating. 2. Locates points in a Cartesian plane, based on the types of numbers studied (x- and y-coordinates of a point)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Plot coordinates on the Cartesian plane	Plotting coordinates on the Cartesian plane

# Grade 8

## 1 Arithmetic

### 1.1 Understanding real numbers

8.AR.1.2b	
Fractions. b. Identifies the different meanings of fractions: part of a whole, division, ratio, operator, measurement	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AR.1.10	
Defines the concept absolute value in context (e.g. difference between two numbers, distance between two points)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AR.1.11b	
Represents and writes. b. squares and square roots	
Course Topics	Activities
Geometric Figures	Square Roots
Topics	Skill Quests
Find square roots	Finding square roots

8.AR.1.11c	
Represents and writes. c. numbers in exponential notation (integral exponent)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AR.1.13	
Estimates the order of magnitude of a real number in different contexts	
Course Topics	Activities
Geometric Figures	Estimate Square Roots
Topics	Skill Quests
Teacher directed	

<b>8.AR.1.15b</b>	
Compares and arranges in order. b. numbers expressed in different ways (fractional, decimal, exponential [integral exponent], percentage, square root, scientific notation)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

## 1.2 Operations involving real numbers

<b>8.AR.3.5</b>	
Approximates the result of an operation or sequence of operations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.AR.3.6</b>	
Mentally computes the four operations, especially with numbers written in decimal notation, using equivalent ways of writing numbers and the properties of operations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.AR.3.7a</b>	
Computes, in writing, the four operations with numbers that are easy to work with (including large numbers), using equivalent ways of writing numbers and the properties of operations a. numbers written in decimal notation, using rules of signs	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Multiply & divide decimals	Multiplying & dividing positive/negative decimals



<b>8.AR.3.7b</b> Computes, in writing, the four operations with numbers that are easy to work with (including large numbers), using equivalent ways of writing numbers and the properties of operations b. positive numbers written in fractional notation, with or without the use of objects or diagrams	
Course Topics	Activities
Proportional Reasoning	Calculating Percentages
	Percentage Composition
	Percentage Word Problems
	Successive Discounts
Topics	Skill Quests
Fraction word problems	Multiplication & division fraction word problems

<b>8.AR.3.11</b> Switches, as needed, from one way of writing numbers to another	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

### 1.3 Understanding and analyzing proportional situations

<b>8.AR.4.1b</b> Calculates. b. the value corresponding to 100 per cent	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.AR.4.2</b> Recognizes ratios and rates	
Course Topics	Activities
Proportional Reasoning	Ratios
	Ratio
	Equivalent Ratios
	Ratio and Proportion
Topics	Skill Quests
Teacher directed	

8.AR.4.3	
Interprets ratios and rates	
Course Topics	Activities
Proportional Reasoning	Ratio
	Equivalent Ratios
	Ratio and Proportion
	Dividing a Quantity in a Ratio
Topics	Skill Quests
Teacher directed	

8.AR.4.4	
Describes the effect of changing a term in a ratio or rate	
Course Topics	Activities
Proportional Reasoning	Rates
Topics	Skill Quests
Teacher directed	

8.AR.4.5a	
Compares. a. ratios and rates qualitatively (equivalent rates and ratios, unit rate)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AR.4.5b	
Compares. b. ratios and rates quantitatively (equivalent rates and ratios, unit rate)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AR.4.6	
Translates a situation using a ratio or rate	
Course Topics	Activities
Proportional Reasoning	Rates Calculations
Topics	Skill Quests
Teacher directed	

8.AR.4.7	
Recognizes a proportional situation using the context, a table of values or a graph	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.AR.4.8</b>	
Represents or interprets a proportional situation using a graph, a table of values or a proportion	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Interpret a point, proportional graphs	Interpreting a point on a proportional graph

<b>8.AR.4.9</b>	
Solves proportional situations (direct or inverse variation) by using different strategies (e.g. unit-rate method, factor of change, proportionality ratio, additive procedure, constant product [inverse variation])	
Course Topics	Activities
Proportional Reasoning	Solve Proportions
Topics	Skill Quests
Solve proportional situations	Solving inverse variation problems
	Solving proportions problems

## 2 Algebra

### 2.1 Understanding and manipulating algebraic expressions

8.AL.1.A1	
Algebraic expressions. 1. Describes, using his/her own words and mathematical language, numerical patterns	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Describe patterns	Describing patterns

8.AL.1.A4a	
Describes the role of components of algebraic expressions: a. unknown	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.A4b	
Describes the role of components of algebraic expressions: b. variable, constant	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.A4d	
Describes the role of components of algebraic expressions: d. coefficient, degree, term, constant term, like terms	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.A5	
Algebraic expressions. 5. Constructs an algebraic expression using a register (type) of representation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.A6	
Algebraic expressions. 6. Interprets an algebraic expression in light of the context	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.A7	
Algebraic expressions. 7. Recognizes or constructs equivalent algebraic expressions	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Verify equivalent expressions	Verifying equivalent expressions

8.AL.1.A8a	
Algebraic expressions. 8. Recognizes or constructs: a. equalities and equations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.B1	
Manipulating algebraic expressions. 1. Calculates the numeric value of an algebraic expression	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Evaluate expressions	Evaluating expressions

8.AL.1.B2	
Manipulating algebraic expressions. 2. Performs the following operations on algebraic expressions, with or without objects or diagrams: addition and subtraction, multiplication and division by a constant, multiplication of first-degree monomials	
Course Topics	Activities
Algebra	Like Terms: Add, Subtract
	Multiplication with Exponents
Topics	Skill Quests
Teacher directed	

8.AL.1.B3	
Manipulating algebraic expressions. 3. Factors out the common factor in numerical expressions (distributive property of multiplication over addition or subtraction)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.C1	
Analyzing situations using equations or inequalities. 1. Recognizes whether a situation can be translated by a. an equation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.C2a	
Analyzing situations using equations or inequalities. 2. Recognizes or constructs a. relations or formulas	
Course Topics	Activities
Algebra	Find the Pattern Rule
Topics	Skill Quests
Teacher directed	

8.AL.1.C3	
Analyzing situations using equations or inequalities. 3. Manipulates relations or formulas (e.g. isolates an element)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.C4a	
Analyzing situations using equations or inequalities. 4. Represents a situation using a. a first-degree equation with one unknown	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.C5a	
Analyzing situations using equations or inequalities. 5. Represents a. an equation using another register (type) of representation, if necessary	
Course Topics	Activities
Algebra	Pattern Rules and Tables
	Graphing from a Table of Values 2
Topics	Skill Quests
Teacher directed	

8.AL.1.C7	
Analyzing situations using equations or inequalities. 7. Transforms arithmetic equalities and equations to maintain equivalence (properties and rules for transforming equalities) and justifies the steps followed, if necessary	
Course Topics	Activities
Algebra	Solving Simple Equations
Topics	Skill Quests
Teacher directed	

8.AL.1.C9	
Analyzing situations using equations or inequalities. 9. Uses different methods to solve first-degree equations with one unknown of the form $ax + b = cx + d$ : trial and error, drawings, arithmetic methods (inverse or equivalent operations), algebraic methods (balancing equations or hidden terms)	
Course Topics	Activities
Algebra	Solving More Equations
Topics	Skill Quests
Teacher directed	

8.AL.1.C13	
Analyzing situations using equations or inequalities. 13. Validates a solution, with or without technological tools, by substitution	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AL.1.C15	
Analyzing situations using equations or inequalities. 15. Interprets solutions or makes decisions, if necessary, depending on the context	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

## 2.2 Understanding dependency relationships

<b>8.AL.2.A2</b>	
Relations, functions and inverses. 2. Analyzes situations using different registers (types) of representation	
Course Topics	Activities
Algebra	Table of Values
Topics	Skill Quests
Teacher directed	

<b>8.AL.2.A3</b>	
Relations, functions and inverses. 3. Represents a situation generally using a graph	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Distance/time graphs	Constructing distance/time graphs



### 3 Probability

#### 3.1 Understanding data from random experiments

8.P.A7	
Processing data from random experiments. 7. Conducts or simulates random experiments involving one or more steps (with or without replacement, with or without order)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.P.A9a	
Processing data from random experiments. 9. Enumerates the possible outcomes of a random experiment using a. tables, tree diagram	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.P.A9b	
Processing data from random experiments. 9. Enumerates the possible outcomes of a random experiment using b. networks, tables, diagrams, Venn diagrams	
Course Topics	Activities
Chance	Possible Outcomes
Topics	Skill Quests
Teacher directed	

8.P.A10	
Processing data from random experiments. 10. Defines the sample space of a random experiment	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Define the sample space	Defining the sample space

8.P.A11	
Processing data from random experiments. 11. Recognizes certain, probable, impossible, simple, complementary, compatible, incompatible, dependent, independents events	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.P.A13</b> Processing data from random experiments. 13. Uses fractions, decimals or percentages to quantify a probability	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Calculate probability	Calculating probability

<b>8.P.B3</b> Analyzing probability situations. 3. Distinguishes between theoretical and experimental probability	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.P.B4</b> Analyzing probability situations. 4. Calculates the probability of an event	
Course Topics	Activities
Chance	Simple Probability
	Complementary Events
	Probability Tables
	Dice and Coins
Topics	Skill Quests
Calculate probability of compound events	Calculating probabilities of compound events

<b>8.P.B9</b> Analyzing probability situations. 9. Interprets probabilities and makes appropriate decisions	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

## 4 Statistics

### 4.1 Analyzing and making decisions about one- or two-variable distributions, using statistical tools

8.S.A1a	
One-variable distributions. 1. Conducts a survey or a census a. Formulates questions for a survey/caption	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Construct appropriate survey questions	Constructing appropriate survey questions

8.S.A1b	
One-variable distributions. 1. Conducts a survey or a census b. Chooses a sampling method: i. simple random, systematic	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.S.A1c	
One-variable distributions. 1. Conducts a survey or a census c. Chooses a representative sample	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Random sampling	Random sampling

8.S.A2	
One-variable distributions. 2. Recognizes possible sources of bias	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Recognize possible sources of bias	Recognizing possible sources of bias

8.S.A3	
One-variable distributions. 3. Interprets data presented in a table or a bar graph, a pictograph, a broken-line graph or a circle graph	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Interpret data presented in graphs	Interpreting data presented in graphs

<b>8.S.A4</b>	
One-variable distributions. 4. Distinguishes different types of statistical variables: qualitative, discrete or continuous quantitative	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Classify data: qualitative/quantitative	Classifying data as qualitative or quantitative

<b>8.S.A6a</b>	
One-variable distributions. 6. Organizes and presents data using a. a table, a bar graph, a pictograph and a broken-line graph	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Construct broken-line graphs	Constructing broken-line graphs

<b>8.S.A6b</b>	
One-variable distributions. 6. Organizes and presents data using b. a table presenting variables or frequencies, or using a circular graph	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Construct circle graphs	Constructing circle graphs
Construct a frequency table	Constructing a frequency table

<b>8.S.A7</b>	
One-variable distributions. 7. Compares one-variable distributions	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.S.A9</b>	
One-variable distributions. 9. Describes the concept of arithmetic mean (levelling or balance point)	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.S.A10</b>	
One-variable distributions. 10. Calculates and interprets an arithmetic mean	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.S.A11b</b>	
One-variable distributions. 11. Determines and interprets b. measures of dispersion: i. range	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.S.A11c</b>	
One-variable distributions. 11. Determines and interprets c. measures of position: i. minimum, maximum	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.S.A12</b>	
One-variable distributions. 12. Chooses the appropriate statistical measures for a given situation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

## 5 Geometry

### 5.1 Spatial sense and analyzing situations involving geometric figures

8.G.1.A6	
Plane figures. 6. Decomposes plane figures into circles (sectors), triangles or quadrilaterals	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.1.A7	
Plane figures. 7. Describes circles and sectors	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.1.A8a	
Plane figures. 8. Recognizes and draws main segments and lines a. diagonal, altitude, median, perpendicular bisector, bisector, apothem, radius, diameter, chord	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.1.A9	
Plane figures. 9. Identifies the properties of plane figures using geometric transformations and constructions	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.1.A10	
Plane figures. 10. Justifies statements using definitions or properties of plane figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.G.1.B2</b> Solids. 2. Determines the possible nets of a solid	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.G.1.B3</b> Solids. 3. Names the solid corresponding to a net	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.G.1.B4b</b> Solids. 4. Describes solids: b. altitude, apothem, lateral face	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.G.1.B6a</b> Solids. 6. Recognizes solids that can be split into a. right prisms, right cylinders, right pyramids	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.G.1.C2</b> Geometric constructions and transformations in the Euclidian plane. 2. Identifies properties and invariants resulting from geometric constructions and transformations	
Course Topics	Activities
Similarity and Transformation	Rotational Symmetry
Topics	Skill Quests
Teacher directed	

<b>8.G.1.C3</b> Geometric constructions and transformations in the Euclidian plane. 3. Identifies congruence (translation, rotation and reflection) between two figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Identify congruent figures	Identifying congruent figures

<b>8.G.1.C4</b>	
Geometric constructions and transformations in the Euclidian plane. 4. Constructs the image of a figure under a translation, rotation and reflection	
Course Topics	Activities
Similarity and Transformation	Transformations: Coordinate Plane
Topics	Skill Quests
Translations, reflections & rotations	Translations, reflections & rotations

<b>8.G.1.C5</b>	
Geometric constructions and transformations in the Euclidian plane. 5. Recognizes dilatation with a positive scale factor	
Course Topics	Activities
Similarity and Transformation	Scale Factor
Topics	Skill Quests
Teacher directed	

<b>8.G.1.C6</b>	
Geometric constructions and transformations in the Euclidian plane. 6. Constructs the image of a figure under a dilatation with a positive scale factor	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Dilations	Dilations

<b>8.G.1.D1</b>	
Congruent, similar or equivalent figures. 1. Identifies congruent figures in frieze patterns and tessellations	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Tessellations	Tessellations

<b>8.G.1.D2</b>	
Congruent, similar or equivalent figures. 2. Recognizes congruent or similar figures	
Course Topics	Activities
Similarity and Transformation	Similar Figures 1
	Similar Figures 2
	Using Similar Triangles
Topics	Skill Quests
Similarity	Identifying similar triangles



8.G.1.D3	
Congruent, similar or equivalent figures. 3. Recognizes the geometric transformation(s) linking a figure and its image	
Course Topics	Activities
Similarity and Transformation	Flip, Slide, Turn
	Transformations
	Rotations: Coordinate Plane
Topics	Skill Quests
Transformations	Dilations, translations, rotations & reflections

8.G.1.D4	
Congruent, similar or equivalent figures. 4. Determines the properties and invariants of congruent or similar figures	
Course Topics	Activities
Similarity and Transformation	Similar Figures 2
	Using Similar Triangles
Topics	Skill Quests
Properties & invariants of figures	Invariants of congruent figures
	Using scale to analyze similar triangles

8.G.1.D8	
Congruent, similar or equivalent figures. 8. Justifies statements using definitions or properties of congruent, similar or equivalent figures, depending on the cycle and year	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

## 5.2 Analyzing situations involving measurements

8.G.2.B4	
Time. 4. Distinguishes between duration and position in time	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.2.C3	
Angles. 3. Describes the characteristics of different types of angles: complementary, supplementary, adjacent, vertically opposite, alternate interior, alternate exterior and corresponding	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.2.C4	
Angles. 4. Determines measures of angles using the properties of the following angles: complementary, supplementary, vertically opposite, alternate interior, alternate exterior and corresponding	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.2.C5a	
Angles. 5. Finds unknown measurements using the properties of figures and relations a. measures of angles in a triangle	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Calculate angles in isosceles triangles	Calculating angles in isosceles triangles

8.G.2.C5b	
Angles. 5. Finds unknown measurements using the properties of figures and relations b. degree measures of central angles and arcs	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.2.C8	
Angles. 8. Justifies statements using definitions or properties associated with angles and their measures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.2.D4	
Length. 4. Constructs relations that can be used to calculate the perimeter or circumference of figures	
Course Topics	Activities
Geometric Figures	Perimeter: Squares and Rectangles
	Perimeter: Composite Shapes
	Circumference: Circles
	Perimeter and Circles
	Perimeter: Triangles 2
Topics	Skill Quests
Teacher directed	

8.G.2.D5a	
Length. 5. Finds the following unknown measurements, using properties of figures and relations a. perimeter of plane figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Find the perimeter, plane figures	Finding the perimeters of composite figures
	Finding the perimeters of quadrants & semicircles

8.G.2.D5b	
Length. 5. Finds the following unknown measurements, using properties of figures and relations b. a segment in a plane figure, circumference, radius, diameter, length of an arc, a segment resulting from an isometry or a similarity transformation	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Circumference & arc lengths	Finding the circumference, radius/diameter length
	Finding arc lengths & the perimeters of sectors

8.G.2.D6	
Justifies statements concerning measures of length	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.2.E3	
Area. 3. Establishes relationships between SI units of area	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.2.E4	
Area. 4. Constructs relations that can be used to calculate the area of plane figures: quadrilateral, triangle, circle (sectors)	
Course Topics	Activities
Geometric Figures	Area: Squares and Rectangles
	Area: Triangles
	Area: Circles
Topics	Skill Quests
Teacher directed	

8.G.2.E6a	
Area. 6. Finds unknown measurements, using properties of figures and relations a. area of circles and sectors	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.2.E6b	
Area. 6. Finds unknown measurements, using properties of figures and relations b. area of figures that can be split into circles (sectors), triangles or quadrilaterals	
Course Topics	Activities
Geometric Figures	Area: Compound Figures
Topics	Skill Quests
Teacher directed	

8.G.2.E6c	
Area. 6. Finds unknown measurements, using properties of figures and relations. c. lateral or total area of right prisms, right cylinders and right pyramids	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Find the lateral area	Finding the lateral area of prisms
	Finding the lateral area of cylinders
	Finding the lateral area of pyramids

8.G.2.E6d	
Area. 6. Finds unknown measurements, using properties of figures and relations d. lateral or total area of solids that can be split into right prisms, right cylinders or right pyramids	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.G.2.E6e	
Area. 6. Finds unknown measurements, using properties of figures and relations e. area of figures resulting from an isometry	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.G.2.E7</b>	
Area. 7. Justifies statements concerning measures of area	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

<b>8.G.2.G1</b>	
Metric or trigonometric relations. 1. Determines, through exploration or deduction, different metric relations associated with plane figures	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

## 6 Analytic Geometry

### 6.1 Analyzing situations using analytic geometry

8.AG.A1	
Locating. 1. Locates objects/numbers on an axis, based on the types of numbers studied	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Teacher directed	

8.AG.A2	
Locating. 2. Locates points in a Cartesian plane, based on the types of numbers studied (x- and y-coordinates of a point)	
Course Topics	Activities
Algebra	Ordered Pairs
	Reading Values from a Line
Similarity and Transformation	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
Topics	Skill Quests
Teacher directed	



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