# Mathletics Quebec Program of Studies Skill Quests



## **Grades 7 – 8**



May, 2022

## Mathletics

Quebec Program of Studies Skill Quests May 2022

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## Grade 7

#### **1** Arithmetic

#### 1.1 Understanding real numbers

Outcome	Quests	Content
1. Natural numbers less than 1 000 000 a. Reads and writes any natural number	Read & write numbers of any size	Reading & writing numbers of any size
<ol> <li>Natural numbers less than</li> <li>000 000</li> <li>Composes and decomposes a</li> <li>natural number in a variety of ways</li> <li>and identifies equivalent</li> <li>expressions</li> </ol>	Compose & decompose numbers	Using place value to partition numbers of any size
<ol> <li>Natural numbers less than</li> <li>000 000</li> <li>Approximates a natural number</li> </ol>	Round numbers	Rounding numbers
<ol> <li>Natural numbers less than</li> <li>000 000</li> <li>Compares natural numbers or arranges natural numbers in increasing or decreasing order</li> </ol>	Compare & order numbers	Comparing & ordering numbers
2. Fractions	Meanings of fractions	Fractions as operators
b. Identifies the different meanings of fractions: part of a whole, division, ratio, operator, measurement		Fractions as division
2. Fractions c. Verifies whether two fractions are equivalent	Equivalent fractions	Finding equivalent fractions
3. Decimals up to thousandths a. Represents decimals in a variety of ways (using objects or drawings) and identifies equivalent representations	Represent decimals	Locating decimals on a number line
3. Decimals up to thousandths e. Compares numbers written in decimal notation or arranges them in increasing or decreasing order	Order terminating & repeating decimals	Ordering terminating & repeating decimals
4. Integers a. Represents integers in a variety of ways (using objects or drawings)	Represent integers	Locating integers on a number line

4. Integers	Read & write integers	Reading & writing integers
b. Reads and writes integers		
4. Integers	Compare & order	Comparing & ordering integers
c. Compares integers or arranges	integers	
integers in increasing or decreasing		
order		
10. Defines the concept absolute	Absolute value	Understanding absolute value
value in context		
11. Represents and writes	Squares & square roots	Squares & square roots
b. squares and square roots		
11. Represents and writes	Write numbers in	Writing numbers in
c. numbers in exponential notation	exponential notation	exponential notation
(integral exponent)		
15. Compares and arranges in	Compare & order	Comparing & ordering
order	fractions & decimals	fractions & decimals
a. numbers written in fractional or		
decimal notation		
15. Compares and arranges in	Compare/order	Compare & order fractions,
order	numbers in different	decimals & percentages
b. numbers expressed in different	forms	
ways (fractional, decimal,		
exponential [integral exponent],		
percentage, square root)		

#### 1.2 Understanding operations involving real numbers

Outcome	Quests	Content
<ol> <li>Natural numbers less than</li> <li>000 000</li> <li>Uses objects, diagrams or</li> <li>equations to represent a situation</li> <li>and, conversely, describes a</li> </ol>	Write equations to represent a situation	Writing equations to represent a situation
situation represented by objects, diagrams or equations (use of different meanings of the four operations)		
<ol> <li>Natural numbers less than</li> <li>000 000</li> <li>c. Establishes equality relations between numerical expressions</li> <li>(e.g. 3 + 2 = 6 - 1)</li> </ol>	Equality relations	Understanding equality
1. Natural numbers less than 1 000 000	Addition & multiplication	The commutative & associative properties
d. Determines numerical equivalencies using relationships between operations, the commutative and associative properties of addition and	properties	The distributive property

multiplication, the distributive	
property of multiplication over	
addition or subtraction	

#### 1.3 Operations involving real numbers

2. Fractions (using objects or diagrams) b. Reduces a fraction to its simplest	Simplify fractions	Simplifying fractions
form		
2. Fractions (using objects or	Add & subtract	Adding & subtracting fractions
diagrams)	fractions	
c. Adds and subtracts fractions		
fraction is a multiple of the other		
fraction		
2. Fractions (using objects or	Multiply fractions &	Multiplying fractions & natural
diagrams)	natural numbers	numbers
d. Multiplies a natural number by a		
fraction and a fraction by a natural		
number		
4. Properties of divisibility	Divisibility	Divisibility
a. Determines the divisibility of a		
6 Mentally computes the four	Operations with	Adding & subtracting
operations, especially with numbers	decimals	decimals, mental strategies
written in decimal notation, using		Multiplying & dividing
equivalent ways of writing numbers		decimals, mental strategies
and the properties of operations		
7. Computes, in writing, the four	Computation with	Adding & subtracting positive
operations with numbers that are	decimals	& negative decimals
easy to work with (including large		
writing numbers and the properties		
of operations		
a. numbers written in decimal		
notation, using rules of signs		
		Multiplying & dividing
		decimals, algorithm
7. Computes, in writing, the four	Computation with	Adding fractions & mixed
operations with numbers that are	fractions	numbers
easy to work with (including large		Subtracting fractions & mixed
writing numbers and the properties		Multiplying fractions & mixed
of operations		numbers
b. positive numbers written in		Dividing fractions & mixed
fractional notation, with or without		numbers
the use of objects or diagrams		

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)	Order of operations, decimals	Add & subtract +/- decimals, order of operations
10. Switches, as needed, from one	Convert between	Converting between fractions
way of writing numbers to another:	fractions & decimals	& decimals
from fractional to percentage		Converting between decimals
notation, from decimal to fractional		& percentages
notation, from decimal to		Converting between fractions
percentage notation, and vice versa		& percentages
		Converting fractions, decimals
		& percentages
13. Decomposes a natural number	Express numbers as	Expressing numbers as prime
into prime factors	prime factors	factors

#### 1.4 Understanding and analyzing proportional situations

Outcome	Quests	Content
1. Calculates	Calculate with	Calculating with percentages
1. Calculates b. the value corresponding to 100 per cent	Solve problems involving finding 100%	Solving problems involving finding 100%
3. Interprets ratios and rates	Interpret ratios & rates	Interpreting ratios & rates
5. Compares b. ratios and rates quantitatively (equivalent rates and ratios, unit rate)	Compare ratios & rates	Comparing ratios & rates
6. Translates a situation using a ratio or rate	Translate situations, ratios & rates	Translating situations using ratios & rates
7. Recognizes a proportional situation using the context, a table of values or a graph	Identify proportional relationships	Identifying proportional relationships
8. Represents or interprets a proportional situation using a graph, a table of values or a proportion	Constant of proportionality, table	Constant of proportionality, table
9. 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])	Solve problems involving proportions	Solving problems involving proportions

## 2 Algebra

#### 2.1 Understanding and manipulating algebraic expressions

Outcome	Quests	Content
A. Algebraic expressions 1. Describes, using his/her own words and mathematical language, numerical patterns	Describe patterns algebraically	Describing patterns algebraically
<ul> <li>A. Algebraic expressions</li> <li>2. Describes, using his/her own words and mathematical language, series of numbers and family of operations</li> </ul>	Recognize geometric sequences	Recognizing geometric sequences
A. Algebraic expressions 3. Adds new terms to a series when the first three terms or more are given	Find the nth term of linear sequences	Finding the nth term of linear sequences
<ul> <li>A. Algebraic expressions</li> <li>4. Describes the role of components of algebraic expressions: <ul> <li>a. unknown</li> <li>b. variable, constant</li> <li>c. parameter</li> <li>d. coefficient, degree, term,</li> <li>constant term, like terms</li> </ul> </li> </ul>	Components of algebraic expressions	Identifying components of algebraic expressions
<ul> <li>A. Algebraic expressions</li> <li>5. Constructs an algebraic</li> <li>expression using a register (type) of</li> <li>representation</li> </ul>	Write algebraic expressions	Writing algebraic expressions
<ul><li>A. Algebraic expressions</li><li>6. Interprets an algebraic</li><li>expression in light of the context</li></ul>	Use & interpret algebraic notation	Using & interpreting algebraic notation
<ul><li>A. Algebraic expressions</li><li>7. Recognizes or constructs</li><li>equivalent algebraic expressions</li></ul>	Equivalent algebraic expressions	Equivalent algebraic expressions
<ul><li>A. Algebraic expressions</li><li>8. Recognizes or constructs</li><li>a. equalities and equations</li></ul>	Write equations	Writing equations
<ul><li>B. Manipulating algebraic</li><li>expressions</li><li>1. Calculates the numeric value of</li><li>an algebraic expression</li></ul>	Evaluate algebraic expressions	Evaluating algebraic expressions
<ul> <li>B. Manipulating algebraic expressions</li> <li>2. Performs the following operations on algebraic expressions, with or without objects</li> </ul>	Simplify algebraic expressions	Simplifying algebraic expressions, 4 operations

or diagrams: addition and subtraction, multiplication and division by a constant, multiplication of first-degree monomials		
<ul> <li>B. Manipulating algebraic expressions</li> <li>3. Factors out the common factor in numerical expressions (distributive property of multiplication over addition or subtraction)</li> </ul>	The distributive property	Using the distributive property
C. Analyzing situations using equations or inequalities 2. Recognizes or constructs a. relations or formulas	Understand formulas & equations	Understanding formulas & equations
C. Analyzing situations using equations or inequalities 3. Manipulates relations or formulas (e.g. isolates an element)	Manipulate formulas & equations	Manipulating formulas & equations
C. Analyzing situations using equations or inequalities 4. Represents a situation using a. a first-degree equation with one unknown	Write & solve equations	Writing & solving equations
<ul><li>C. Analyzing situations using equations or inequalities</li><li>6. Determines the missing term in an equation (relations between operations)</li></ul>	Solve 1-step equations	Solving 1-step equations
C. Analyzing situations using equations or inequalities 13. Validates a solution, with or without technological tools, by substitution	Validate solutions using substitution	Validating solutions using substitution
<ul><li>A. Relations, functions and inverses</li><li>3. Represents a situation generally using a graph</li></ul>	Graph discrete linear relationships	Graphing discrete linear relationships

## 3 Probability

#### 3.1 Understanding data from random experiments

<ul> <li>A. Processing data from random experiments</li> <li>3. In activities involving chance</li> <li>a. recognizes variability in possible outcomes (uncertainty)</li> </ul>	Describe variability in outcomes	Describing variability in outcomes
<ul> <li>A. Processing data from random experiments</li> <li>3. In activities involving chance</li> <li>b. recognizes equiprobability (e.g. quantity of objects, symmetry of an object such as a cube)</li> </ul>	Recognize equiprobability	Recognizing equiprobability
<ul> <li>A. Processing data from random experiments</li> <li>3. In activities involving chance</li> <li>c. becomes aware of the independence of events</li> <li>(e.g. rolling dice, tossing a coin, drawing lots)</li> </ul>	Independent events	Independent events
<ul> <li>A. Processing data from random experiments</li> <li>5. Compares the outcomes of a random experiment with known theoretical probabilities</li> </ul>	Compare outcomes	Comparing outcomes with theoretical probability
<ul> <li>A. Processing data from random experiments</li> <li>7. Conducts or simulates random experiments involving one or more steps (with or without replacement, with or without order)</li> </ul>	Create & conduct chance experiments	Creating & conducting chance experiments
<ul><li>A. Processing data from random experiments</li><li>10. Defines the sample space of a random experiment</li></ul>	Identify the sample space	Identifying the sample space
<ul> <li>A. Processing data from random experiments</li> <li>11. Recognizes certain, probable, impossible, simple, complementary, compatible, incompatible, dependent, independents events</li> </ul>	Recognize events	Recognizing events
<ul> <li>A. Processing data from random experiments</li> <li>13. Uses fractions, decimals or percentages to quantify a probability</li> </ul>	Quantify probability	Probability: decimals, fractions, percentages

B. Analyzing probability situations 3. Distinguishes between theoretical and experimental probability	Theoretical & experimental probability	Theoretical & experimental probability
<ul><li>B. Analyzing probability situations</li><li>4. Calculates the probability of an event</li></ul>	Calculate the probability of an event	Calculating the probability of an event

#### Statistics

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

Outcome	Quests	Content
A. One-variable distributions 8. Understands and calculates the arithmetic mean	Calculate the mean	Calculating the mean
A. One-variable distributions 11. Determines and interprets b. measures of dispersion: i. range	Determine the range	Determining the range

#### 5 Geometry

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

A. Plane figures 1. Describes convex and nonconvex polygons	Convex & nonconvex polygons	Convex & nonconvex polygons
<ul><li>A. Plane figures</li><li>2. Describes and classifies</li><li>quadrilaterals</li></ul>	Classify/identify special quadrilaterals	Classifying & identifying special quadrilaterals
<ul><li>A. Plane figures</li><li>3. Describes and classifies triangles</li></ul>	Classify triangles	Classifying triangles
A. Plane figures 4. Describes circles: radius, diameter, circumference, central angle	Describe circles	Describing circles
<ul><li>B. Solids</li><li>2. Determines the possible nets of a solid</li></ul>	Connect solids with their nets	Connecting solids with their nets
C. Geometric constructions and transformations in the Euclidian plane 3. Identifies congruence (translation, rotation and reflection) between two figures	Congruence	Congruence
C. Geometric constructions and transformations in the Euclidian plane 4. Constructs the image of a figure under a translation, rotation and reflection	Plot transformations, Cartesian plane	Plotting transformations, Cartesian plane
<ul> <li>C. Geometric constructions and transformations in the Euclidian plane</li> <li>6. Constructs the image of a figure under a dilatation with a positive scale factor</li> </ul>	Dilations	Dilations
D. Congruent, similar or equivalent figures 1. Identifies congruent figures in frieze patterns and tessellations	Tessellations	Tessellations

#### 5.2 Analyzing situations involving measurements

Outcome	Quests	Content
A. Mass	Choose appropriate	Choosing appropriate units to
1. Chooses the appropriate unit of	units to measure mass	measure mass
mass for the context		

3. Establishes relationships       standard units of mass       standard units of mass         B. Time       Convert related       standard units of time         3. Establishes relationships       convert related       standard units of time         between units of time: second, minute, hour, day, daily cycle, veerkly cycle, yearly cycle       Converting between related         2. Angles       Measure angles       Measure angles         2. Estimates and determines the degree measure of angles       Define angles       Complementary, supplementary, adjacent autremte interior, alternate exterior and corresponding       Define angles       Calculating complementary & adjacent angles         C. Angles       A. Determines measures of angles using the properties of the following angles: complementary, vertically opposite, alternate interior, alternate exterior and corresponding       Angles of a triangle       Calculating complementary & supplementary & supplementary angles         C. Angles       Angles of a triangle       Calculating angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Measures of central angles       triangle         S. Finds unknown measurements using the properties of figures and relations       Measures of central angles       triangle         J. Chooses the appropriate unit of angles       Measures of central angles       triangle       triangle         J. Chooses the following unknown	A. Mass	Convert related	Converting between related
between units of massconvert related standard units of timeConverting between related standard units of timeB. TimeS. Establishes relationships between units of time: second, minute, hour, day, daily cycle,Convert related standard units of timeConverting between related standard units of timeWeekly cycle, yearly cycleMeasure anglesMeasuring anglesC. AnglesDefine anglesComplementary, supplementary, adjacent, vertically opposite, alternate interior, alternate exterior and correspondingDefine anglesComplementary, supplementary, supplementary, supplementary, supplementary, supplementary, supplementary, supplementary, supplementary, supplementary, supplementary, supplementary, supplementary,	3. Establishes relationships	standard units of mass	standard units of mass
B. Time       Convert related       Converting between related         3. Establishes relationships       between units of time: second,       standard units of time       standard units of time         C. Angles       Measure angles       Measuring angles       Complementary.         2. Estimates and determines the degree measure of angles       Define angles       Complementary.       supplementary.         3. Describes the characteristics of different types of angles:       Define angles       Complementary.       supplementary.         4. Determines measures of angles       Measures of angles       Angle pairs on parallel lines       Calculating complementary & supplementary & supplementary angles         9. Determines measures of angles       Measures of angles       Calculating complementary & supplementary angles         9. Supplementary, vertically opposite, alternate exterior and corresponding       Angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Calculating angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Calculating angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Calculating angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Calculating angles of a triangle	between units of mass		
3. Establishes relationships between units of time: second, minute, hour, day, daily cycle, weekly cycle, yearly cycle       standard units of time       standard units of time         C. Angles       Lestimates and determines the degree measure of angles       Measure angles       Measuring angles         C. Angles       Define angles       Complementary, supplementary, supplementary, adjacent, vertically opposite, alternate interior, alternate exterior and corresponding       Define angles       Complementary, supplementary, vertically opposite, alternate interior, alternate exterior and corresponding       Angle pairs on parallel lines         C. Angles       Measures of angles:       Calculating complementary, supplementary, vertically opposite, alternate interior, alternate exterior and corresponding       Angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Calculating angles of a triangle       Calculating angles of a triangle         S. Finds unknown measurements using the properties of figures and relations       Measures of central angles       Measures of central angles       Measures of central angles         A. negs measures of central angles and arcs       Choose units to measure the length       Choosing appropriate units to measure the length         D. Length       Find the perimeter of plane figures       Finding the perimeter of plane figures and relations a. perimeter of plane figures, sing the following unknown measurements, using properties of figures and relations       Find a segment in a plane figure	B. Time	Convert related	Converting between related
between units of time: second, minute, hour, day, daily cycle, weekly cycle, yearly cycle C. Angles C. Ang	3. Establishes relationships	standard units of time	standard units of time
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C. Angles       Measure angles       Measuring angles         2. Estimates and determines the degree measure of angles       Define angles       Complementary, supplementary, adjacent angles         C. Angles       Define angles       Complementary, supplementary, adjacent, vertically opposite, alternate interior, alternate exterior and corresponding       Measures of angles       Calculating complementary & adjacent angles         4. Determines measures of angles       Measures of angles       Angle pairs on parallel lines       Calculating complementary & supplementary & supplementary & supplementary & adjacent angles         9. Determines measures of angles       Measures of angles       Angle pairs on parallel lines         1. Determines measures of the following angles: complementary, vertically opposite, alternate interior, alternate exterior and corresponding       Angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Calculating angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Calculating angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of central angles       Measures of central angles       Measures of central angles         J. Ength       Choose units to measure the length       Measure the length       Measure the length         D. Length       Find the perimeter of plane figures       Find the segme	weekly cycle, yearly cycle		
2. Estimates and determines the degree measure of angles       Define angles       Complementary, supplementary, supplementary, adjacent angles         3. Describes the characteristics of different types of angles: complementary, supplementary, adjacent, vertically opposite, alternate interior, alternate exterior and corresponding       Define angles       Complementary, supplementary, supplementary, supplementary, supplementary, supplementary, supplementary, vertically opposite, alternate interior, alternate exterior and corresponding       Measures of angles       Angle pairs on parallel lines         C. Angles       Angle pairs on parallel lines       Calculating complementary, supplementary, supplementary, vertically opposite, alternate interior, alternate exterior and corresponding       Angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Calculating angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Measures of central angles       Measures of central angles         a. measures of angles in a triangle       Measures of central angles       Measures of central angles         5. Finds unknown measurements using the properties of figures and relations       Measures of central angles       Measures of central angles         0. Length       Choose units to measure the length       Find the perimeter of plane figures       Find the perimeter of plane figures         0. Length       Find a segment in a plane figure       Find a segment in	C. Angles	Measure angles	Measuring angles
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3. Describes the characteristics of different types of angles: complementary, supplementary, adjacent, vertically opposite, alternate interior, alternate exterior and corresponding       Supplementary, supplementary, adjacent, angles         4. Determines measures of angles using the properties of the following angles: complementary, vertically opposite, alternate interior, alternate exterior and corresponding       Measures of angles       Angle pairs on parallel lines         C. Angles       Measures of angles       Calculating complementary & supplementary angles: complementary, vertically opposite, alternate interior, alternate exterior and corresponding       Angles of a triangle       Calculating angles of a triangle         C. Angles       Angles of a triangle       Calculating angles of a triangle       Calculating angles of a triangle         S. Finds unknown measurements using the properties of figures and relations       Measures of central angles       Measures of central angles         b. degree measures of central angles and arcs       Choose units to measure the length       Measures of central angles         D. Length       Find the perimeter of plane figures of figures and relations       Find the perimeter of plane figures         D. Length       Find a segment in a plane figure       Finding the length of segment in a plane figure         D. Length       Find a segment in a plane figure       Finding the length of segment after transformation         D. Length       Find a segment in a plane figure       Finding the length of segment afte	C. Angles	Define angles	Complementary.
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circumference, radius, diameter,	h a segment in a plane figure		
length of an arc a segment	circumference radius diameter		
	length of an arc a segment		

resulting from an isometry or a similarity transformation		
E. Area 1. Chooses the appropriate unit of area for the context	Choose appropriate units to measure area	Choosing an appropriate unit to measure area
E. Area 3. Establishes relationships between SI units of area	Convert related standard units of area	Converting between related standard units of area
<ul> <li>E. Area</li> <li>6. Finds unknown measurements, using properties of figures and relations</li> <li>a. area of circles and sectors</li> </ul>	Find the area of a circle	Finding the area of a circle
E. 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	Find the area of composite shapes	Finding the area of composite shapes
F. Volume 1. Chooses the appropriate unit of volume for the context	Choose appropriate units for volume	Choosing appropriate units to measure volume
F. Volume 2. Estimates and measures volume or capacity using conventional units: cubic centimetre, cubic decimetre, cubic metre, millilitre, litre	Measure volume, cubic- centimetre blocks	Measuring volume with cubic- centimetre blocks
F. Volume 4. Establishes relationships between a. capacity units: millilitre, litre	Convert related units of capacity	Converting between related units of capacity
A. Locating 2. Locates points in a Cartesian plane, based on the types of numbers studied (x- and y- coordinates of a point)	Plot coordinates on the Cartesian plane	Plotting coordinates on the Cartesian plane

## Grade 8

#### **1** Arithmetic

#### **1.1 Understanding real numbers**

Outcome	Quests	Content
1. Represents and writes	Find square roots	Finding square roots
b. squares and square roots		

#### 1.2 Operations involving real numbers

Outcome	Quests	Content
7. Computes, in writing, the four	Multiply & divide	Multiplying & dividing
operations with numbers that are	decimals	positive/negative decimals
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		
7. Computes, in writing, the four	Fraction word	Multiplication & division
operations with numbers that are	problems	fraction word problems
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		

#### 1.3 Understanding and analyzing proportional situations

Outcome	Quests	Content
8. Represents or interprets a proportional situation using a graph, a table of values or a proportion	Interpret a point, proportional graphs	Interpreting a point on a proportional graph
9. Solves proportional situations (direct or inverse variation) by using	Solve proportional situations	Solving inverse variation problems
different strategies (e.g. unit-rate method, factor of change,		Solving proportions problems

proportionality ratio, additive	
procedure, constant product	
[inverse variation])	

## 2. Algebra

#### 2.1 Understanding and manipulating algebraic expressions

Outcome	Quests	Content
A. Algebraic expressions	Describe patterns	Describing patterns
1. Describes, using his/her own		
words and mathematical language,		
numerical patterns		
A. Algebraic expressions	Verify equivalent	Verifying equivalent
7. Recognizes or constructs	expressions	expressions
equivalent algebraic expressions		
B. Manipulating algebraic	Evaluate expressions	Evaluating expressions
expressions		
1. Calculates the numeric value of		
an algebraic expression		
A. Relations, functions and inverses	Distance/time graphs	Constructing distance/time
3. Represents a situation generally		graphs
using a graph		

## 3 Probability

#### 3.1 Understanding data from random experiments

Outcome	Quests	Content
A. Processing data from random	Define the sample	Defining the sample space
experiments	space	
10. Defines the sample space of a		
random experiment		
A. Processing data from random	Calculate probability	Calculating probability
experiments		
13. Uses fractions, decimals or		
percentages to quantify a		
probability		
B. Analyzing probability situations	Calculate probability of	Calculating probabilities of
4. Calculates the probability of an	compound events	compound events
event		

#### Statistics

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

Outcome	Quests	Content
A. One-variable distributions 1. Conducts a survey or a census a. Formulates questions for a survey	Construct appropriate survey questions	Constructing appropriate survey questions
<ul><li>A. One-variable distributions</li><li>1. Conducts a survey or a census</li><li>c. Chooses a representative sample</li></ul>	Random sampling	Random sampling
A. One-variable distributions 2. Recognizes possible sources of bias	Recognize possible sources of bias	Recognizing possible sources of bias
A. One-variable distributions 3. Interprets data presented in a table or a bar graph, a pictograph, a broken-line graph or a circle graph	Interpret data presented in graphs	Interpreting data presented in graphs
<ul> <li>A. One-variable distributions</li> <li>4. Distinguishes different types of statistical variables: qualitative, discrete or continuous quantitative</li> </ul>	Classify data: qualitative/quantitative	Classifying data as qualitative or quantitative
<ul> <li>A. One-variable distributions</li> <li>6. Organizes and presents data using</li> <li>a. a table, a bar graph, a pictograph and a broken-line graph</li> </ul>	Construct broken-line graphs	Constructing broken-line graphs
A. One-variable distributions 6. Organizes and presents data using b. a table presenting variables or frequencies, or using a circular	Construct circle graphs Construct a frequency table	Constructing circle graphs Constructing a frequency table

#### 5 Geometry

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

Outcome	Quests	Content
C. Geometric constructions and	Identify congruent	Identifying congruent figures
	ngules	
3 Identifies congruence		
(translation, rotation and reflection)		
between two figures		
C. Geometric constructions and	Translations,	Translations, reflections &
transformations in the Euclidian	reflections & rotations	rotations
plane		
4. Constructs the image of a figure		
under a translation, rotation and		
reflection		
C. Geometric constructions and	Dilations	Dilations
transformations in the Euclidian		
plane		
6. Constructs the image of a figure		
under a dilatation with a positive		
D Congruent similar or equivalent	Taggallations	Taggallations
D. Congruent, similar or equivalent	ressenctions	ressenctions
1 Identifies congruent figures in		
frieze patterns and tessellations		
D Congruent similar or equivalent	Similarity	Identifying similar triangles
figures	Similarity	lacitarying similar thangles
2. Recognizes congruent or similar		
fiqures		
D. Congruent, similar or equivalent	Transformations	Dilations, translations,
figures		rotations & reflections
3. Recognizes the geometric		
transformation(s) linking a figure		
and its image		
D. Congruent, similar or equivalent	Properties & invariants	Invariants of congruent figures
figures	of figures	Using scale to analyze similar
4. Determines the properties and		triangles
invariants of congruent or similar		
tigures		

#### 5.2 Analyzing situations involving measurements

Outcome	Quests	Content
C. Angles 5. Finds unknown measurements using the properties of figures and relations a. measures of angles in a triangle	Calculate angles in isosceles triangles	Calculating angles in isosceles triangles
D. Length 5. Finds the following unknown	Find the perimeter, plane figures	Finding the perimeters of composite figures
measurements, using properties of figures and relations a. perimeter of plane figures		Finding the perimeters of quadrants & semicircles
D. Length 5. Finds the following unknown	Circumference & arc lengths	Finding the circumference, radius/diameter length
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		Finding arc lengths & the perimeters of sectors
E. Area 6. Finds unknown measurements,	Find the lateral area	Finding the lateral area of prisms
using properties of figures and relations		Finding the lateral area of cylinders
<ul> <li>c. lateral or total area of right prisms, right cylinders and right pyramids</li> </ul>		Finding the lateral area of pyramids



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