Progression of Learning in Elementary School

Mathematics
Arithmetic

Understanding and writing numbers						
→ Student constructs knowledge with teacher guidance. ★ Student applies knowledge by the end of the school year. Student reinvests knowledge.	Elementary					
	Cycle One		Cycle Two		Cycle Three	
	1	2	3	4	5	6
A. Natural numbers less than . . .	1000		100 000		1 000 000	
1. Counts or recites counting rhymes involving natural numbers						
a. counts forward from a given number	→	★				
b. counts forward or backward	→	★	→	★	→	★
c. skip counts (e.g. by twos)	→	★	→	★	→	★
2. Counts collections (using objects or drawings)						
a. matches the gesture to the corresponding number word; recognizes the cardinal aspect of a number and the conservation of number in various combinations	★					
b. counts from a given number	→	★				
c. counts a collection by grouping or regrouping	→	★	→	★	→	★
d. counts a pre-grouped collection			→	★	→	★
3. Reads and writes any natural number	→	★	→	★	→	★
4. Represents natural numbers in different ways or associates a number with a set of objects or drawings						
a. emphasis on apparent, accessible groupings using objects, drawings or unstructured materials (e.g. tokens, nesting cubes, groups of ten objects placed inside a bag and ten of these bags placed inside another container)	→	★				
b. emphasis on exchanging apparent, non-accessible groupings, using structured		→	→	★		

materials (e.g. base ten blocks, number tables) Gizmos: Mascot Election (Pictographs and Bar Graphs) Modeling Decimals (Base-10 Blocks) Reaction Time 1 (Graphs and Statistics) Reaction Time 2 (Graphs and Statistics)						
c. emphasis on place value in non-apparent, non-accessible groupings, using materials for which groupings are symbolic (e.g. abacus, money) Gizmos: Cannonball Clowns (Number Line Estimation) Modeling Decimals (Base-10 Blocks)			→	→	→	★
5. Composes and decomposes a natural number in a variety of ways (e.g. $123 = 100 + 23$ $123 = 100 + 20 + 3$ $123 = 50 + 50 + 20 + 3$ $123 = 2 \times 50 + 30 - 7$ $123 = 2 \times 60 + 3$) Gizmos: Number Line Frog Hop (Addition and Subtraction)	→	★	→	★	→	★
6. Identifies equivalent expressions (e.g. $52 = 40 + 12$, $25 + 27 = 40 + 12$, $52 = 104 \div 2$)	→	★	→	★	→	★
7. Compares natural numbers	→	★	→	★	→	★
8. Arranges natural numbers in increasing or decreasing order	→	★	→	★	→	★
9. Describes number patterns, using his/her own words and appropriate mathematical vocabulary (e.g. even numbers, odd numbers, square numbers, triangular numbers, prime numbers, composite numbers) Gizmos: Factor Trees (Factoring Numbers) Pattern Flip (Patterns)	→	★	→	★	→	★

10. Locates natural numbers using different visual aids (e.g. hundreds chart, number strip, number line) Gizmos: Cannonball Clowns (Number Line Estimation) Fraction Garden (Comparing Fractions) Modeling Fractions (Area Models)	→	★	→	★	→	★
11. Identifies properties of natural numbers						
a. odd or even numbers	→	★				
b. square, prime or composite numbers Gizmos: Factor Trees (Factoring Numbers)			→	★		
12. Classifies natural numbers in various ways, based on their properties (e.g. even numbers, composite numbers)	→	★	→	★	→	★
13. Approximates a collection, using objects or drawings (e.g. estimate, round up/down to a given value) Gizmo: Measuring Motion	→	★	→	★	→	★
14. Represents the power of a natural number					→	★
Vocabulary Grouping, digit, number, unit, tens place, hundreds place Natural number, even number, odd number *Is equal to, is bigger than (is greater than); is smaller than (is less than)* Increasing order, decreasing order Number line **Symbols** 0 to 9, <, >, =, numbers written using digits	→	★				
Vocabulary Base ten, position, place value, thousand, thousands place, ten thousands *Is not equal to; is greater than; is less than* Square number, composite number, prime number **Symbols** ≠, numbers written using digits			→	★		
Vocabulary Hundred thousands, million					→	★

Exponent, power, squared, cubed Parenthesis **Symbols** ( ), numbers written using digits, exponential notation						
B. **Fractions (using objects or drawings)**	**1**	**2**	**3**	**4**	**5**	**6**
1. Identifies fractions related to everyday items (using objects or drawings)	→	★				
2. Represents a fraction in a variety of ways, based on a whole or a collection of objects Gizmos: Equivalent Fractions (Fraction Tiles) Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction Garden (Comparing Fractions) Modeling Fractions (Area Models) Toy Factory (Set Models of Fractions)	→	→	→	→	→	★
3. Matches a fraction to part of a whole (congruent or equivalent parts) or part of a group of objects, and vice versa Gizmos: Adding Fractions (Fraction Tiles) Equivalent Fractions (Fraction Tiles) Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction Garden (Comparing Fractions) Fractions Greater than One (Fraction Tiles) Modeling Fractions (Area Models)			→	★		
4. Identifies the different meanings of fractions (sharing, division, ratio)			→	→	→	→
5. Distinguishes a numerator from a denominator			→	★		
6. Reads and writes a fraction Gizmos: Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction, Decimal, Percent (Area and Grid Models)			→	★		
7. Compares a fraction to 0, $\frac{1}{2}$ or 1 Gizmos:			→	★		

Equivalent Fractions (Fraction Tiles) Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction Garden (Comparing Fractions) Fraction, Decimal, Percent (Area and Grid Models) Modeling Fractions (Area Models)						
8. Verifies whether two fractions are equivalent Gizmos: Adding Fractions (Fraction Tiles) Equivalent Fractions (Fraction Tiles) Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction Garden (Comparing Fractions) Fractions Greater than One (Fraction Tiles) Modeling Fractions (Area Models)			→	→	→	★
9. Matches a decimal or percentage to a fraction Gizmo: Fraction, Decimal, Percent (Area and Grid Models) Treasure Hunter (Decimals on the Number Line)				→	→	★
10. Orders fractions with the same denominator Gizmo: Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction Garden (Comparing Fractions) Modeling Fractions (Area Models)					→	★
11. Orders fractions where one denominator is a multiple of the other(s) Gizmo: Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction Garden (Comparing Fractions) Modeling Fractions (Area Models)					→	★

12. Orders fractions with the same numerator Gizmo: Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction Garden (Comparing Fractions) Modeling Fractions (Area Models)					→	★
13. Locates fractions on a number line Gizmo: Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction Garden (Comparing Fractions) Modeling Fractions (Area Models)					→	★
Vocabulary Fraction, half, one third, one quarter	→	★				
Vocabulary Numerator, denominator Whole, equivalent part, equivalent fraction **Symbol** Fractional notation			→	★		

C. **Decimals up to . . .**	1	2	3	4	5	6
			hundredths		thousandths	
1. Represents decimals in a variety of ways (using objects or drawings) Gizmos: Adding Decimals (Base-10 Blocks) Factor Trees (Factoring Numbers) Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Modeling Decimals (Area and Grid Models) Modeling Decimals (Base-10 Blocks) Subtracting Decimals (Base-10 Blocks) Toy Factory (Set Models of Fractions)			→	★	→	★
2. Identifies equivalent representations (using objects or drawings) Gizmos: Fraction, Decimal, Percent (Area and Grid Models) Modeling Decimals (Area and Grid Models)			→	★	→	★
3. Reads and writes numbers written in decimal notation			→	★	→	★

Gizmos: Modeling Decimals (Base-10 Blocks) Treasure Hunter (Decimals on the Number Line)						
4. Understands the role of the decimal point Gizmos: Fraction, Decimal, Percent (Area and Grid Models) Modeling Decimals (Area and Grid Models)			→	★		
5. Composes and decomposes a decimal written in decimal notation Gizmos Fraction, Decimal, Percent (Area and Grid Models) Modeling Decimals (Area and Grid Models) Number Line Frog Hop (Addition and Subtraction)			→	★	→	★
6. Recognizes equivalent expressions (e.g. 12 tenths is equivalent to 1 unit and 2 tenths; 0.5 is equivalent to 0.50) Gizmos: Fraction, Decimal, Percent (Area and Grid Models) Modeling Decimals (Area and Grid Models)			→	★	→	★
7. Locates decimals on a number line						
a) between two consecutive natural numbers Gizmos: Fraction, Decimal, Percent (Area and Grid Models)			→	★	→	★
b) between two decimals Gizmo: Fraction, Decimal, Percent (Area and Grid Models) Modeling Decimals (Area and Grid Models) Modeling Decimals (Base-10 Blocks) Treasure Hunter (Decimals on the Number Line)				→	→	★
8. Compares two decimals Gizmos: Adding Decimals (Base-10 Blocks) Fraction, Decimal, Percent (Area and Grid Models) Modeling Decimals (Area and Grid Models)			→	★	→	★

		1	2	3	4	5	6
[Modeling Decimals (Base-10 Blocks)](#) [Treasure Hunter (Decimals on the Number Line)](#)								
9. Approximates (e.g. estimates, rounds to a given value, truncates decimal places) Gizmos: [Rounding Whole Numbers (Number Line)](#) [Target Sum Card Game (Multi-digit Addition)](#)				→	★	→	★
10. Arranges decimals in increasing or decreasing order Gizmos: [Adding Decimals (Base-10 Blocks)](#) [Fraction, Decimal, Percent (Area and Grid Models)](#) [Modeling Decimals (Area and Grid Models)](#) [Modeling Decimals (Base-10 Blocks)](#) [Treasure Hunter (Decimals on the Number Line)](#)				→	★	→	★
11. Matches								
a. a fraction to its decimal Gizmos: [Fraction Artist 1 (Area Models of Fractions)](#) [Fraction Artist 2 (Area Models of Fractions)](#) [Fraction, Decimal, Percent (Area and Grid Models)](#) [Modeling Decimals (Area and Grid Models)](#) [Treasure Hunter (Decimals on the Number Line)](#)				→	★		
b. a fraction or percentage to its decimal Gizmos: [Fraction, Decimal, Percent (Area and Grid Models)](#) [Treasure Hunter (Decimals on the Number Line)](#)						→	★
Vocabulary Decimal, tenth, hundredth **Symbol** Decimal notation				→	★		
Vocabulary Thousandth **Symbol** Decimal notation						→	★
D. **Integers**		1	2	3	4	5	6

	1	2	3	4	5	6
1. Represents integers in a variety of ways (using objects or drawings) (e.g. tokens in two different colours, number line, thermometer, football field, elevator, hot air balloon)				→	→	★
2. Reads and writes integers					→	★
3. Locates integers on a number line or Cartesian plane Gizmos: City Tour (Coordinates) Comparing and Ordering Integers					→	★
4. Compares integers Gizmos: Comparing and Ordering Integers					→	★
5. Arranges integers in increasing or decreasing order Gizmos: Comparing and Ordering Integers					→	★
Vocabulary Integer Negative number, positive number **Symbols** Integer notation, +/– calculator key					→	★

Meaning of operations involving numbers						
→ Student constructs knowledge with teacher guidance. ★ Student applies knowledge by the end of the school year. Student reinvests knowledge.	Elementary					
	Cycle One		Cycle Two		Cycle Three	
	1	2	3	4	5	6
A. **Natural numbers less than . . .**	1000		100 000		1 000 000	
1. Determines the operation(s) to perform in a given situation	→	★	→	★	→	★
2. 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 addition and subtraction)						

Content	1	2	3	4	5	6
a. transformation (adding, taking away), uniting, comparing	→	★	→	★	→	★
b. composition of transformations: positive, negative			→	★	→	★
c. composition of mixed transformations Gizmos: [Quilting Bee (Symmetry)](#) [Rock Art (Transformations)](#)					→	★
3. 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 multiplication and division)						
a. rectangular arrays, repeated addition, Cartesian product, sharing, and number of times x goes into y (using objects and diagrams)	→	★				
b. rectangular arrays, repeated addition, Cartesian product, area, volume, repeated subtraction, sharing, number of times x goes into y, and comparisons (using objects, diagrams or equations) Gizmos: [Chocomatic (Multiplication, Arrays, and Area)](#) [Critter Count (Modeling Multiplication)](#) [No Alien Left Behind (Division with Remainders)](#)			→	★	→	★
4. Establishes equality relations between numerical expressions (e.g. $3 + 2 = 6 - 1$)	→	★	→	★	→	★
5. Determines numerical equivalencies using relationships between						
a. operations (addition and subtraction) and the commutative property of addition	→	★				
b. operations (the four operations), the commutative property of addition and multiplication and the associative property Gizmos:			→	★		

	1	2	3	4	5	6
c. operations (the four operations), the commutative property of addition and multiplication, the associative property and the distributive property of multiplication over addition or subtraction Gizmos: Chocomatic (Multiplication, Arrays, and Area) Critter Count (Modeling Multiplication)					→	★
6. Translates a situation using a series of operations in accordance with the order of operations					→	★
Vocabulary Plus, minus, less, more Addition, subtraction, sum, difference **Symbols** +, −	→	★				
Vocabulary At least, at most, term, missing term Multiplication, factor, product Division, divisor, dividend, quotient, remainder, sharing Equality, inequality, equation, inverse operation, multiple **Symbols** ×, ÷			→	★		
B. **Decimals up to . . .**	1	2	3 hundredths	4	5 thousandths	6
1. 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 addition and subtraction)						
a) transformation (adding, taking away), uniting, comparing			→	★	→	★
b) composition of transformations: positive, negative			→	★	→	★
c) composition of mixed transformations Gizmos: Quilting Bee (Symmetry)					→	★

	1	2	3	4	5	6
[Rock Art (Transformations)](#)						
2. 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 multiplication and division: rectangular arrays, Cartesian product, area, volume, sharing, number of times x goes into $y,$ and comparisons)			→	★	→	★
3. Determines numerical equivalencies using						
a. the relationship between operations (addition and subtraction), the commutative property of addition and the associative property Gizmos: [Adding Decimals (Base-10 Blocks)](#) [Function Machines 3 (Functions and Problem Solving)](#) [Number Line Frog Hop (Addition and Subtraction)](#) [Subtracting Decimals (Base-10 Blocks)](#)			→	★		
b. relationships between operations (the four operations), the commutative property of addition and multiplication, the associative property and the distributive property of multiplication over addition or subtraction Gizmos: [Chocomatic (Multiplication, Arrays, and Area)](#) [Critter Count (Modeling Multiplication)](#)					→	★
4. Translates a situation into a series of operations in accordance with the order of operations					→	★
C. **Fractions**	**1**	**2**	**3**	**4**	**5**	**6**
1. 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 addition, subtraction and multiplication by a natural number)					→	★

Operations involving numbers						
→ Student constructs knowledge with teacher guidance. ★ Student applies knowledge by the end of the school year. Student reinvests knowledge.	**Elementary**					
	Cycle One		**Cycle Two**		**Cycle Three**	
A. **Natural numbers** **(based on the benchmarks for each cycle)**	**1**	**2**	**3**	**4**	**5**	**6**
1. Approximates the result of						
a. an addition or subtraction involving natural numbers	→	★	▩	▩	▩	▩
b. any of the four operations involving natural numbers Gizmos: Chocomatic (Multiplication, Arrays, and Area) Multiplying Decimals (Area Model)			→	→	→	★
2. Builds a repertoire of memorized addition and subtraction facts[1]						
a. Builds a memory of addition facts[2] (0 + 0 to 10 + 10) and the corresponding subtraction facts, using objects, drawings, charts or tables	→	★				
b. Develops various strategies that promote mastery of number facts and relates them to the properties of addition	→	→	★	▩	▩	▩
c. Masters all addition facts (0 + 0 to 10 + 10) and the corresponding subtraction facts	→	→	★	▩	▩	▩
3. Develops processes for mental computation						

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
a. Uses his/her own processes to determine the sum or difference of two natural numbers	→	★				
b. Uses his/her own processes to determine the product or quotient of two natural numbers Gizmos: Multiplying Decimals (Area Model)			→	→	→	★
4. Develops processes for written computation (addition and subtraction)						
a. Uses his/her own processes as well as objects and drawings to determine the sum or difference of two natural numbers less than 1000	→	★				
b. Uses conventional processes to determine the sum of two natural numbers of up to four digits			→	★		
c. Uses conventional processes to determine the difference between two natural numbers of up to four digits whose result is greater than 0			→	★		
5. Determines the missing term in an equation (relationships between operations): $a + b = \square,\ a + \square = c,\ \square + b = c,\ a - b = \square,\ a - \square = c,\ \square - b = c$ Gizmos: Function Machines 3 (Functions and Problem Solving) Number Line Frog Hop (Addition and Subtraction)	→	★				
6. Builds a repertoire of memorized multiplication and division facts						
a. Builds a memory of multiplication facts (0×0 to 10×10) and the corresponding division facts, using objects, drawings, charts or tables Gizmos: Factor Trees (Factoring Numbers)			→	★		
b. Develops various strategies that promote mastery of number facts and relate them to the properties of multiplication Gizmos: Factor Trees (Factoring Numbers) Multiplying Decimals (Area Model)			→	→	★	

c. Masters all multiplication facts (0×0 to 10×10) and the corresponding division facts			→	→	★
Gizmos:					
[Factor Trees (Factoring Numbers)](#)					

7. Develops processes for written computation (multiplication and division)					

a. Uses his/her own processes as well as materials and drawings to determine the product or quotient of a three-digit natural number and a one-digit natural number, expresses the remainder of a division as a fraction, depending on the context			→	★	
Gizmos:					
[Multiplying Decimals (Area Model)](#)					
b. Uses conventional processes to determine the product of a three-digit natural number and a two-digit natural number				→	★
c. Uses conventional processes to determine the quotient of a four-digit natural number and a two-digit natural number, expresses the remainder of a division as a decimal that does not go beyond the second decimal place				→	★

8. Determines the missing term in an equation (relationships between operations): $a \times b = \square$, $a \times \square = c$, $\square \times b = c$, $a \div b = \square$, $a \div \square = c$, $\square \div b = c$	→	→	→	★	
Gizmos:					
[Function Machines 3 (Functions and Problem Solving)](#)					

9. Decomposes a number into prime factors			→	→	★
Gizmos:					
[Factor Trees (Factoring Numbers)](#)					
[Number Line Frog Hop (Addition and Subtraction)](#)					

10. Calculates the power of a number				→	★
11. Determines the divisibility of a number by 2, 3, 4, 5, 6, 8, 9, 10				→	★
12. Performs a series of operations in accordance with the order of operations				→	★

		1	2	3	4	5	6
13. Using his/her own words and mathematical language that is at an appropriate level for the cycle, describes							
a. non-numerical patterns (e.g. series of colours, shapes, sounds, gestures) Gizmos: Pattern Flip (Patterns)		→	★				
b. numerical patterns (e.g. number rhymes, tables and charts) Gizmos: Mascot Election (Pictographs and Bar Graphs) Pattern Flip (Patterns) Reaction Time 1 (Graphs and Statistics) Reaction Time 2 (Graphs and Statistics)		→	★				
c. series of numbers and family of operations		→	→	→	→	→	★
14. Adds new terms to a series when the first three terms or more are given Gizmos: Pattern Flip (Patterns)		→	→	→	→	→	★
15. Uses a calculator and							
a. becomes familiar with its basic functions (+, −, =, 0 to 9 number keys, all clear, clear)		→	★				
b. becomes familiar with its × and ÷ functions Gizmos: No Alien Left Behind (Division with Remainders)				→	★		
c. becomes familiar with memory keys and change of sign keys (+/−)						→	★
Vocabulary Pattern, series **Symbols** Calculator keys		→	★				
B. **Fractions (using objects or diagrams)**		1	2	3	4	5	6

	1	2	3	4	5	6
1. Generates a set of equivalent fractions Gizmos: Equivalent Fractions (Fraction Tiles) Fraction Artist 1 (Area Models of Fractions) Fraction Artist 2 (Area Models of Fractions) Fraction Garden (Comparing Fractions) Toy Factory (Set Models of Fractions)			→	→	→	★
2. Reduces a fraction to its simplest form (lowest terms) Gizmos: Equivalent Fractions (Fraction Tiles)					→	★
3. Adds and subtracts fractions when the denominator of one fraction is a multiple of the other fraction(s) Gizmos; Adding Fractions (Fraction Tiles)					→	★
4. Multiplies a natural number by a fraction				→	★	
Vocabulary Irreducible fraction				→	★	
C. **Decimals**	1	2	3	4	5	6
1. Approximates the result of						
a. an addition or a subtraction Gizmos: Adding Decimals (Base-10 Blocks) Subtracting Decimals (Base-10 Blocks) Treasure Hunter (Decimals on the Number Line)			→	→	→	★
b. a multiplication or division Gizmos: Multiplying Decimals (Area Model)					→	★
2. Develops processes for mental computation						

		1	2	3	4	5	6
	a. adds and subtracts decimals			→	→	→	★
	b. performs operations involving decimals (multiplication, division by a natural number) Gizmos: Multiplying Decimals (Area Model)					→	★
	c. multiplies and divides by 10, 100, 1000 Gizmos: Multiplying Decimals (Area Model)					→	★
3. Develops processes for written computation							
	a. adds and subtracts decimals whose result does not go beyond the second decimal place Gizmos: Adding Decimals (Base-10 Blocks) Subtracting Decimals (Base-10 Blocks) Treasure Hunter (Decimals on the Number Line)			→	★		
	b. multiplies decimals whose product does not go beyond the second decimal place Gizmos: Multiplying Decimals (Area Model)					→	★
	c. divides a decimal by a natural number less than 11					→	★
Symbols $, ¢				→	★		

D. **Using Numbers**	1	2	3	4	5	6
1. Expresses a decimal as a fraction, and vice versa					→	★
2. Expresses a decimal as a percentage, and vice versa					→	★
3. Expresses a fraction as a percentage, and vice versa					→	★
4. Chooses an appropriate number form for a given context					→	★
Vocabulary Percentage **Symbol**					→	★

Geometry

→ Student constructs knowledge with teacher guidance. ★ Student applies knowledge by the end of the school year. Student reinvests knowledge.	Elementary					
	Cycle One		Cycle Two		Cycle Three	
A. Space	1	2	3	4	5	6
1. Gets his/her bearings and locates objects in space (spatial relationships)	→	★				
2. Locates objects in a plane	→	→	→	★		
3. Locates objects on an axis (based on the types of numbers studied)	→	★	→	★	→	★
4. Locates points in a Cartesian plane						
a) in the first quadrant	→	→	→	★		
b) in all four quadrants Gizmos: [City Tour (Coordinates)](#)					→	★
Vocabulary Reference system, plane, Cartesian plane, ordered pair	→	→	→	★		
Symbols Writing ordered pairs (a, b)	→	→	→	→	→	★
B. Solids	1	2	3	4	5	6
1. Compares objects or parts of objects in the environment with solids (e.g. spheres, cones, cubes, cylinders, prisms, pyramids)	→	★				
2. Compares and constructs solids (e.g. spheres, cones, cubes, cylinders, prisms, pyramids)	→	★				
3. Identifies the main solids (e.g. spheres, cones, cubes, cylinders, prisms, pyramids)	→	★				
Vocabulary Solid, base of a solid, face, flat surface, curved surface Sphere, cone, cube, cylinder, prism, pyramid	→	★				
4. Identifies and represents the different faces of a prism or pyramid	→	★				

			1	2	3	4	5	6
5.	Describes prisms and pyramids in terms of faces, vertices and edges				→	★	▓	▓
6.	Classifies prisms and pyramids				→	★	▓	▓
7.	Constructs a net of a prism or pyramid				→	★	▓	▓
8.	Matches the net of							
	a.	a prism to the corresponding prism and vice versa		→	→	★		
	b.	a pyramid to the corresponding pyramid and vice versa		→	→	★		
	c.	a convex polyhedron to the corresponding convex polyhedron				→	★	
	Vocabulary Vertex, edge, net of a solid				→	★	▓	▓
9.	Tests Euler's theorem on convex polyhedrons					→	★	
	Vocabulary Polyhedron, convex polyhedron					→	★	
	C. Plane figures		1	2	3	4	5	6
1.	Compares and constructs figures made with closed curved lines or closed straight lines		→	★				
2.	Identifies plane figures (square, rectangle, triangle, rhombus and circle)		→	★	▓	▓	▓	▓
3.	Describes plane figures (square, rectangle, triangle and rhombus)		→	★	▓	▓	▓	▓
	Vocabulary Straight line, closed straight line, curved line Plane figure, side Square, circle, rectangle, triangle, rhombus		→	★	▓	▓	▓	▓
4.	Describes convex and nonconvex polygons				→	★	▓	▓
5.	Identifies and constructs parallel lines and perpendicular lines				→	★	▓	▓
6.	Describes quadrilaterals (e.g. parallel segments, perpendicular segments, right angles, acute angles, obtuse angles)				→	★	▓	▓
7.	Classifies quadrilaterals				→	★	▓	▓
	Vocabulary Quadrilateral, parallelogram, trapezoid, polygon Convex polygon, nonconvex polygon, segment *Is parallel to . . ; is perpendicular to . . .* **Symbols**				→	★	▓	▓

	1	2	3	4	5	6
//, ⊥						
8. Describes triangles: scalene triangles, right triangles, isosceles triangles, equilateral triangles					→	★
9. Classifies triangles					→	★
10. Describes circles					→	★
Vocabulary Equilateral triangles, isosceles triangle, right triangle, scalene triangle Circle, central angle, diameter, radius, circumference					→	★
D. **Frieze patterns and tessellations**	1	2	3	4	5	6
1. Identifies congruent figures	→	★				
2. Observes and produces patterns using geometric figures	→	→	→	★		
3. Observes and produces frieze patterns and tessellations						
a. using reflections Gizmos: Pattern Flip (Patterns) Quilting Bee (Symmetry) Rock Art (Transformations)			→	★		
b. using translations Gizmos: Pattern Flip (Patterns) Rock Art (Transformations)					→	★
Vocabulary Frieze pattern, tesselation Reflection, line of reflection, symmetric figure			→	★		
Vocabulary Translation, translation arrow					→	★

Measurement

→ Student constructs knowledge with teacher guidance. ★ Student applies knowledge by the end of the school year. Student reinvests knowledge.	Elementary					
	Cycle One		Cycle Two		Cycle Three	
A. Lengths	1	2	3	4	5	6
1. Compares lengths	→	★				
2. Constructs rulers	→	★				
3. Estimates and measures the dimensions of an object using unconventional units	→	★				
4. Estimates and measures the dimensions of an object using conventional units						
a. metre, decimetre and centimetre	→	★				
b. metre, decimetre, centimetre and millimeter Gizmos: Measuring Motion Measuring Trees			→	★		
c. metre, decimetre, centimetre, millimetre and kilometer Gizmos: Measuring Motion Measuring Trees					→	★
5. Establishes relationships between units of measure for length						
a. metre, decimetre, centimetre and millimeter Gizmos: Measuring Trees			→	★		
b. metre, decimetre, centimetre, millimetre and kilometer Gizmos:					→	★

	1	2	3	4	5	6
Measuring Trees						
6. Calculates the perimeter of plane figures			→	★		
Vocabulary Width, length, height, depth Unit of measure, centimetre, decimetre, metre **Symbols** m, dm, cm	→	★				
Vocabulary Perimeter, millimetre **Symbol** mm			→	★		
Vocabulary Kilometre **Symbol** km					→	★
B. **Surface areas**	1	2	3	4	5	6
1. Estimates and measures surface area						
a) using unconventional units Gizmos: Measuring Motion			→	★		
b) using conventional units Gizmo: Measuring Motion					→	★
Vocabulary Surface, area			→	★		
Vocabulary Square centimetre, square decimetre, square metre **Symbols** m², dm², cm²					→	★
C. **Volumes**	1	2	3	4	5	6
1. Estimates and measures volume						
a. using unconventional units Gizmo:			→	★		

Balancing Blocks (Volume)	1	2	3	4	5	6
Balancing Blocks (Volume)						
b. using conventional units Gizmo: Balancing Blocks (Volume)					→	★
Vocabulary Volume			→	★	■	■
Vocabulary Cubic centimetre, cubic decimetre, cubic metre **Symbols** m^3, dm^3, cm^3					→	★
D. Angles	1	2	3	4	5	6
1. Compares angles			→	★	■	■
Vocabulary Angle, right angle, acute angle, obtuse angle			→	★	■	■
2. Estimates and determines the degree measurement of angles Gizmo: Measuring Motion					→	★
Vocabulary Degree, protractor **Symbols** ∠, °					→	★
E. Capacities	1	2	3	4	5	6
1. Estimates and measures capacity using unconventional units			→	→	★	■
2. Estimates and measures capacity using conventional units			→	→	★	■
3. Establishes relationships between units of measure (e.g. : 1 L = 1000 mL, $\frac{1}{2}$ L = 500 mL)					★	■
Vocabulary Capacity, litre, millilitre **Symbols** L, mL				→	★	■
F. Masses	1	2	3	4	5	6

	1	2	3	4	5	6
1. Estimates and measures mass using unconventional units Gizmo: Measuring Motion Measuring Trees			→	→	→	★
2. Estimates and measures mass using conventional units Gizmo: Measuring Motion Measuring Trees			→	→	→	★
3. Establishes relationships between units of measure (e.g. : 1 kg = 1000 g, ½ kg = 500 g)					→	★
Vocabulary Mass, gram, kilogram **Symbols** g, kg					→	★
G. Time	1	2	3	4	5	6
1. Estimates and measures time using conventional units Gizmo: Measuring Motion Measuring Trees	→	→	→	★		
2. Establishes relationships between units of measure	→	→	→	→	→	★
Vocabulary Day, hour, minute, second **Symbols** h, min, s, representation of time: 3 h, 3 h 25 min, 03:25, 3:25 a.m.	→	★				
Vocabulary Daily cycle, weekly cycle, yearly cycle	→	→	→	★		
H. Temperatures	1	2	3	4	5	6
1. Estimates and measures temperature using conventional units	→	→	→	→	→	★
Vocabulary Degree Celsius **Symbol**	→	★				

Statistics

➔ Student constructs knowledge with teacher guidance. ★ Student applies knowledge by the end of the school year. Student reinvests knowledge.	Elementary					
	Cycle One		Cycle Two		Cycle Three	
	1	2	3	4	5	6
1. Formulates questions for a survey (based on age-appropriate topics, students' language level, etc.) Gizmo: Mascot Election (Pictographs and Bar Graphs)	➔	➔	➔	➔	➔	★
2. Collects, describes and organizes data (classifies or categorizes) using tables Gizmos: Mascot Election (Pictographs and Bar Graphs) Movie Reviewer (Mean and Median) Reaction Time 1 (Graphs and Statistics) Reaction Time 2 (Graphs and Statistics)	➔	➔	➔	➔	➔	★
3. Interprets data using						
a. a table, a bar graph and a pictograph Gizmos: Elevator Operator (Line Graphs) Graphing Skills Mascot Election (Pictographs and Bar Graphs) Reaction Time 1 (Graphs and Statistics) Reaction Time 2 (Graphs and Statistics)	➔	★				
b. a table, a bar graph, a pictograph and a broken-line graph			➔	★		
c. a table, a bar graph, a pictograph, a broken-line graph and a circle graph Gizmos: Elevator Operator (Line Graphs) Graphing Skills					➔	★

[Mascot Election (Pictographs and Bar Graphs)](#) [Reaction Time 1 (Graphs and Statistics)](#) [Reaction Time 2 (Graphs and Statistics)](#)					

4. Displays data using

a. a table, a bar graph and a pictograph Gizmos: [Elevator Operator (Line Graphs)](#) [Graphing Skills](#) [Mascot Election (Pictographs and Bar Graphs)](#) [Reaction Time 1 (Graphs and Statistics)](#) [Reaction Time 2 (Graphs and Statistics)](#)	→	★			
b. a table, a bar graph, a pictograph and a broken-line graph Gizmos: [Elevator Operator (Line Graphs)](#) [Graphing Skills](#) [Mascot Election (Pictographs and Bar Graphs)](#) [Reaction Time 1 (Graphs and Statistics)](#) [Reaction Time 2 (Graphs and Statistics)](#)			→	★	
5. Understands and calculates the arithmetic mean Gizmos: [Movie Reviewer (Mean and Median)](#) [Reaction Time 2 (Graphs and Statistics)](#)					→ ★
Vocabulaire Survey, table Bar graph, pictograph	★				
Vocabulaire Broken-line graph			→	★	
Vocabulaire Circle graph, arithmetic mean					→ ★

Probability

	Elementary		
→ Student constructs knowledge with teacher guidance. ★ Student applies knowledge by the end of the school year. Student reinvests knowledge.	Cycle One	Cycle Two	Cycle Three
	1 | 2	3 | 4	5 | 6
1. When applicable, recognizes variability in possible outcomes (uncertainty)	→ | →	→ | →	→ | ★
2. When applicable, recognizes equiprobability (e.g. quantity, symmetry of an object [cube]) Gizmos: [Spin the Big Wheel! (Probability)](#)	→ | →	→ | →	→ | ★
3. When applicable, becomes aware of the independence of events in an experiment Gizmos: [Spin the Big Wheel! (Probability)](#)	→ | →	→ | →	→ | ★
4. Experiments with activities involving chance, using various objects (e.g. spinners, rectangular prisms, glasses, marbles, thumb tacks, 6-, 8- or 12-sided dice) Gizmos: [Spin the Big Wheel! (Probability)](#)	→ | →	→ | →	→ | ★
5. Predicts qualitatively an outcome or several events using a probability line, among other things			
a. certain, possible or impossible outcome Gizmos: [Spin the Big Wheel! (Probability)](#)	→ | →	→ | →	→ | ★
b. more likely, just as likely, less likely event Gizmos: [Spin the Big Wheel! (Probability)](#)		→ | →	→ | ★

	C1	C2	C3	C4	C5	C6
6. Distinguishes between prediction and outcome Gizmos: Spin the Big Wheel! (Probability)	→	→	→	→	→	★
7. Uses tables or diagrams to collect and display the outcomes of an experiment Gizmo: Mascot Election (Pictographs and Bar Graphs)	→	→	→	→	→	★
8. Enumerates possible outcomes of						
a. a simple random experiment	→	★				
b. a random experiment, using a table, a tree diagram Gizmos: Spin the Big Wheel! (Probability)			→	→	→	★
9. Compares qualitatively the theoretical or experimental probability of events Gizmos: Spin the Big Wheel! (Probability)			→	→	→	★
10. Recognizes that a probability is always between 0 and 1 Gizmos: Spin the Big Wheel! (Probability)					→	★
11. Uses fractions, decimals or percentages to quantify a probability					→	★
12. Compares the outcomes of a random experiment with known theoretical probabilities Gizmos: Spin the Big Wheel! (Probability)					→	★
13. Simulates random experiments with or without the use of technology Gizmos:			→	→	→	★

Spin the Big Wheel! (Probability)						
Vocabulary Chance, random experiment, enumeration, tree diagram Certain outcome, possible outcome, impossible outcome Event, likely, just as likely, more likely, less likely, event probability	→	→	→	★		