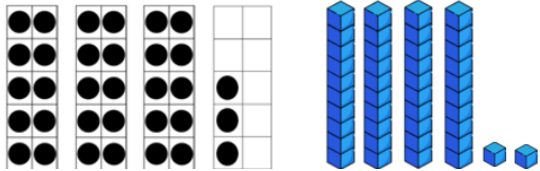


Strand: Number Sense			
Big Idea	Grade 3	Grade 4	Grade 5
Quantity and Place Value	Skill Descriptor: Represent and investigate relationships among numbers to 1000 in a variety of ways. Global Competencies: TBD Achievement Indicators: - Read numerals to 1000 without using the word <i>and</i> (e.g., 675 - six hundred seventy-five) - Write numbers in standard form to 1000 - Read and write numbers in word format (e.g., 675 – six hundred seventy-five) - Recognize and name quantities within 50 using the base ten system (i.e., show groups of tens and ones in recognizable arrangements) to conceptually subitize larger numbers using a 100-bead rekenrek, ten frames and base ten rods and units (e.g. “I see 3 groups of 10 equals 30 and 3 ones equals 33; I see 4 rods equals 40 and 2 units equals 42.”)  - Use understanding of place value to represent and rename whole numbers to 1000, in multiple ways with models (e.g., base 10 materials, place value disks) and without models (e.g., 805 = 8 hundreds and 5 ones <i>or</i> 80 tens and 5 ones) - Use understanding of place value to compare whole numbers to 1000 (e.g., Which is greater: 2 tens and 16 ones or 3 tens and 4 ones?) and explain	Skill Descriptor: Represent and investigate relationships among numbers to 10 000 in a variety of ways. Global Competencies: TBD Achievement Indicators: - Read numerals to 10 000 without using the word <i>and</i> (e.g., 5321 - five thousand three hundred twenty-one) - Write numbers in standard form to 10 000 with proper spacing (without commas) - Read and write numbers in word format (e.g., 9433 – nine thousand, four hundred thirty-three) - Use understanding of place value to represent and rename whole numbers to 10 000 in multiple ways (e.g., 8050 = 8 thousands and 5 tens <i>or</i> 80 hundreds and 5 tens) - Use understanding of place value to compare whole numbers to 10 000 (e.g., Which is greater? 3 hundreds and 17 tens <i>or</i> 4 hundreds and 15 ones?) and explain - Compare numbers to 10 000 and record symbolically (<, >, =) and explain thinking or strategy used - Explain the value of any digit in a number up to 10 000 (e.g., 7777 – 7 hundreds or 700) - Use benchmarks (2500, 5000, 7500) to place and order numbers up to 10 000 on a number line - Partition a variety of number lines with appropriate benchmarks to compare and order given numbers (e.g., place 2304 and 5923 on a number line from 0-6000 using a benchmark of 3000)	Skill Descriptor: Represent and investigate relationships among numbers to 1 000 000 in a variety of ways. Global Competencies: TBD Achievement Indicators: - Read numerals to 1 000 000 without using the word <i>and</i> (e.g., 574 321 - five hundred seventy-four thousand, three hundred twenty-one) - Write numbers in standard form to 1 000 000 with proper spacing (without commas) - Read and write numbers in word format (e.g., 23 005 as twenty-three thousand five) - Use understanding of place value to represent and rename whole numbers up to 1 000 000 in multiple ways (e.g., 805 880 = 8 hundred thousands + 5 thousands + 8 hundreds + 8 tens <i>or</i> 805 thousands + 88 tens) - Use understanding of place value to compare whole numbers to 1 000 000 (e.g., Which is greater? 3 ten thousands and 12 tens <i>or</i> 2 ten thousands, 85 hundreds and 55 tens?) and explain - Compare numbers to 1 000 000 and record symbolically (<, >, =) and explain thinking or strategy used - Explain the value of any digit in a number to 1 000 000 (e.g., 965 431 – 60 000 or 6 ten thousands). - Use benchmarks (e.g., 0, 250 000, 500 000 and 750 000) to place and order numbers to 1 000 000 on a number line

Quantity and Place Value	• Compare numbers to 1000 and record symbolically (<, >, =) and explain thinking or strategy used • Explain the value of any digit in a number up to 1000 (e.g., 333 – 3 tens or 30) • Demonstrate an understanding of place value by using zero to represent the absence of value in the hundreds, tens and ones place • Partition a closed number line 0-1000 to place benchmark numbers of 250, 500 and 750 • Use benchmarks (250, 500, 750) to place and order numbers up to 1000 on a number line • Partition an open number line with the appropriate benchmarks to compare and order given numbers (e.g., place 234 and 593 on a number line from 0-600 using a benchmark of 300)		
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Skill Descriptor: Represent and investigate relationships among fractions in a variety of ways.

Global Competencies: TBD

Achievement Indicators:

- Identify real world examples where fractions occur
- Estimate what unit fraction of a non-partitioned model is shaded



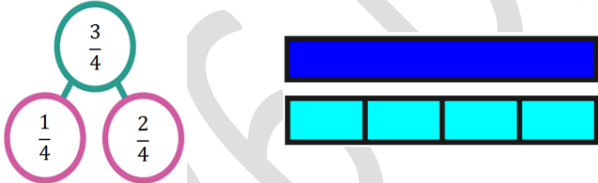
- Represent and identify halves, fourths, eighths, thirds, sixths, fifths and tenths by partitioning length, set, and area models
- Read and record halves, fourths, eighths, thirds, sixths, fifths and tenths
- Identify the numerator and denominator of a fraction in various representations
- Compare fractions with like denominators by reasoning about size using models and a number line, recognizing that comparisons are only valid when the fractions refer to the same whole
- Compare unit fractions by using models and a number line
- Order unit fractions by using models and placement on number lines (e.g., placing Cuisenaire rods on a number line with end points of 0 and 1)
- Demonstrate that fractions can represent a whole number (e.g., $1 = \frac{2}{2}$, $1 = \frac{4}{4}$) with models and a number line.
- Explain that fractions are numbers written in the form $\frac{a}{b}$ that represent a quantity, can be placed on a number line, and compared

Skill Descriptor: Represent and investigate relationships among fractions and decimals (tenths and hundredths) in a variety of ways.

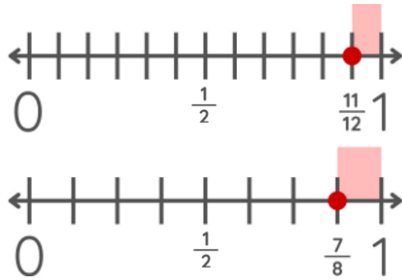
Global Competencies: TBD

Achievement Indicators:

- Identify real world examples where fractions and decimals occur, including time, money, and measurements
- Estimate what fraction of a non-partitioned model is shaded
- Decompose one whole into two fractions (e.g. $\frac{1}{3}$ and $\frac{2}{3}$ or $\frac{1}{5}$ and $\frac{4}{5}$ using models such as a number bond and a bar model



- Decompose a given fraction into unit fractions, using models such as a number bond and bar model
- Represent and identify fractions (unit and other proper fractions)
- Read and record fractions (unit and other proper fractions)
- Compare two fractions with like and unlike numerators and denominators using the benchmarks (0 , $\frac{1}{2}$, 1) on a number line, recognizing that comparisons are only valid when the fractions refer to the same whole

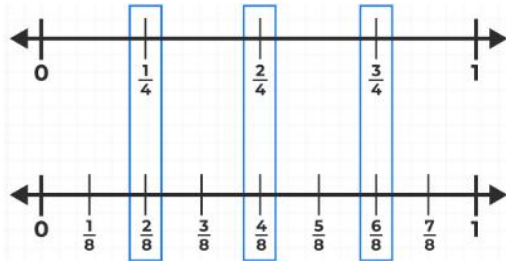


Skill Descriptor: Represent and investigate relationships among fractions and decimals (tenths and hundredths) in a variety of ways.

Global Competencies: TBD

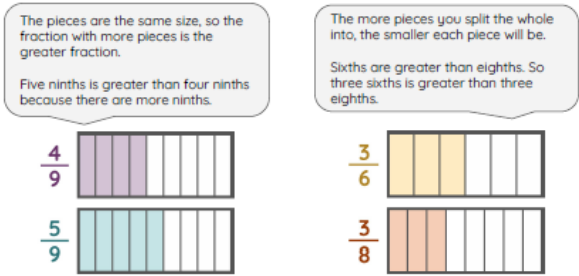
Achievement Indicators:

- Identify real world examples where fractions and decimals occur, including time, money, and measurements
- Represent and identify a variety of fractions, including fractions greater than one (e.g., $\frac{5}{4}$) and mixed numbers (e.g., $1\frac{1}{4}$) using area, set, and linear models
- Read and record fractions
- Determine equivalency of fractions, including proper fractions, fractions greater than one and mixed numbers using area, set, and linear models
- Identify equivalent fractions for a given fraction
- Relate the position of equivalent fractions on a number line

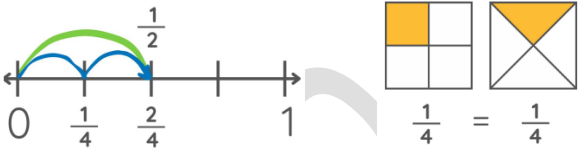


- Simplify a given fraction by dividing the numerator and denominator by a common factor and write the fraction in simplest form
- Represent, record and describe decimal numbers (i.e., tenths and hundredths) using length, set and area models
- Read decimal numbers to hundredths, using place value language (e.g., 2.46 – two and forty-six hundredths)
- Represent equivalency of fractions and decimals (e.g., $13/100 = 0.13$; $64/100 = 0.64$), using models such as base ten materials on a place value chart, hundredths grids and number lines
- Place decimal benchmarks (i.e., 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75) on a number line up to and beyond 1

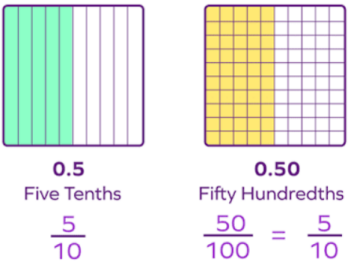
- Compare two fractions with like and unlike denominators, record symbolically ($<$, $>$, $=$), and explain thinking or strategy used



- Order a set of fractions with like and unlike numerators and denominators by considering common numerators, common denominators, and benchmarks
- Represent equivalency with proper fractions such as halves, fourths, eighths, fifths, tenths, thirds and sixths using length, set and area models

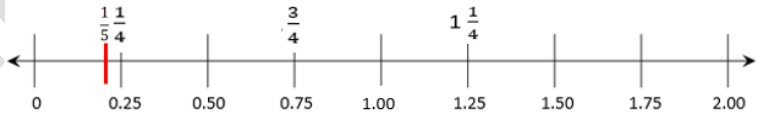


- Represent, record and describe decimal numbers (tenths and hundredths) using length, set and area models
- Read decimal numbers, to hundredths, using place value language (e.g., 3.6 – three and six tenths, 1.45 – one and forty-five hundredths)
- Represent equivalency of fractions and decimals (e.g., $\frac{5}{10} = \frac{5}{10} = 0.50$), using models such as base ten and double number lines



- Place benchmarks (0.25, 0.5, 0.75) on a number line 0 to 1.
- Compare decimals (tenths and hundredths) using decimal benchmarks (e.g., 0.25, 0.50, 0.75, 1, 1.25, 1.5, 1.75, etc.) to place decimals on a number line up to and beyond 1
- Order decimals (i.e., tenths and hundredths) using decimal benchmarks (e.g., 0.25, 0.50, 0.75, 1, 1.25, 1.5, 1.75, etc.) to place decimals on a number line up to and beyond 1

- Order a set of given decimals (i.e., tenths and hundredths) using a variety of models such as, base ten materials on a place value chart, hundredths grids and number lines with decimal benchmarks
- Order a set of given fractions using a variety of models such as, bar models, area models and number lines
- Compare given fractions by placing them on a number line with decimal benchmarks, up to and beyond 1 (e.g., $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{5}$, $1\frac{1}{4}$)



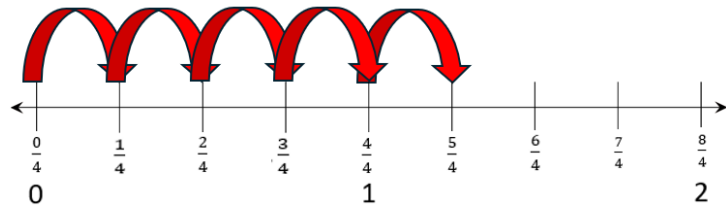
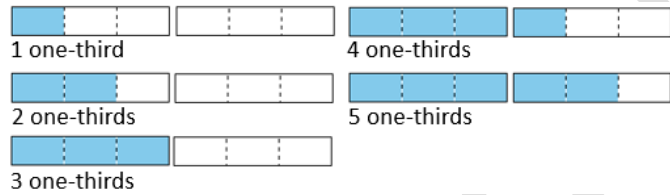
- Compare a fraction and a decimal and record symbolically ($<$, $>$, $=$)

Skill Descriptor: Count and sequence numbers within 1000, applying understanding of place value.

Global Competencies: TBD

Achievement Indicators:

- Count concrete models of numbers (e.g., base ten blocks, Unifix cubes) and non-proportional models of numbers (e.g., place value disks, money)
- Skip count by 10s and 100s, within a given range, from any starting point, forward and backward within 1000 (e.g., 155, 165, 175; 350, 450, 550)
- Skip count by 3s, within a given range, from any multiple of 3, forward and backward (e.g., 18-33, 54-39, 120 to 150, 75-60)
- Skip count by 4s, within a given range, from any multiple of 4, forward and backward (e.g., 24-48, 24-0, 60-84, 100-80)
- Skip count by 25s, within a given range, from any multiple of 25 forward and backward (e.g., 225-400, 375-500, 850-100)
- Order a given set of numerals (consecutive and non-consecutive) within 1000 in ascending and descending order (e.g., 345, 653, 699, 875; 900, 690, 669, 609)
- Count common unit fractions (halves, fourths, eighths, thirds, sixths, fifths and tenths) forward starting at zero using bar models **and** number lines up to and beyond 1 (e.g., start at zero and count forward by one-thirds; start at zero and count forward by one-fourths.)

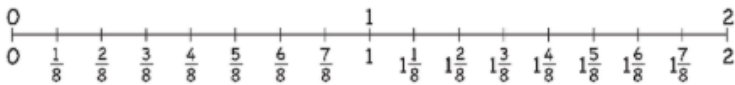
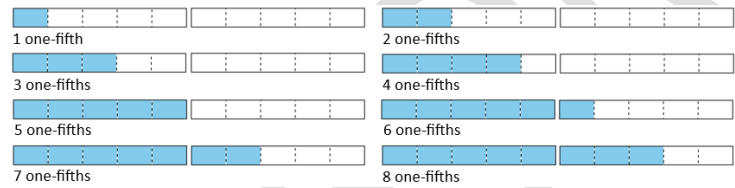


Skill Descriptor: Count and sequence numbers within 10 000, applying understanding of place value.

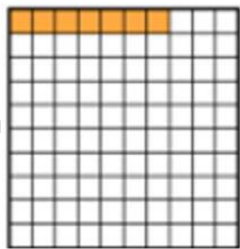
Global Competencies: TBD

Achievement Indicators:

- Order a given set of numerals (consecutive and non-consecutive) within 10 000 in ascending and descending order
- Count unit fractions forward starting at zero using bar models **and** number lines up to and beyond 1 (e.g., start at zero and count forward by one-eighths; start at zero and count forward by one-fifths)



- Count tenths and hundredths in fraction and decimal form using models and pictorial representations (e.g., money, place value disks, base ten, a hundredths grid)



Start at 0, and count forward by hundredths, e.g., "One-hundredth, two-hundredths, three-hundredths, ..., seven-hundredths."

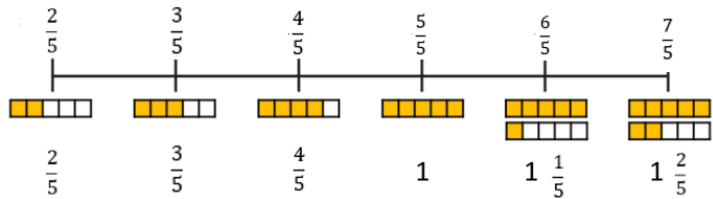
- Count tenths and hundredths forward in fraction and decimal form on a number line starting at zero up to and beyond 1

Skill Descriptor: Count and sequence numbers within 1 000 000, applying understanding of place value.

Global Competencies: TBD

Achievement Indicators:

- Order a given set of numerals (consecutive and non-consecutive) within 1 000 000 in ascending and descending order
- Count unit fractions and mixed numbers, forward and backward in a given range, using a variety of models, including area models and number lines up to and beyond 1 (e.g., start at $\frac{3}{5}$ and count forward and backward by fifths; start at 1, and count forward by one-sixths.)



- Count tenths and hundredths in fractional and decimal form, forward and backward in a given range, on a number line up to and beyond

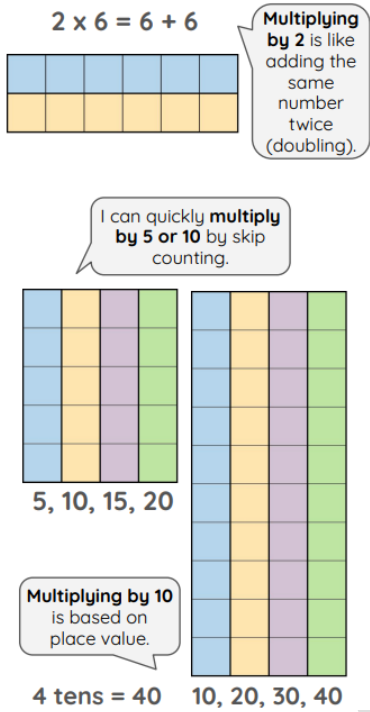
Operations	Skill Descriptor: Demonstrate an understanding of addition with sums within 1000 and the corresponding subtraction in various contexts. Global Competencies: TBD Achievement Indicators: • Identify situations when an approximate answer might be appropriate (e.g., 249 + 207 think 250 + 200; 592 – 299 think 600 - 300) • Estimate sums and differences up to three-digit numbers according to context and justify the reasonableness • Select and apply an efficient strategy to solve addition and subtraction questions and contextual problems, with or without models, (e.g., decomposing and composing numbers based on place value, using multiples of ten to decompose and compose, thinking addition for subtraction) • Solve contextual problems (join/separate, part-part-whole and compare) using an efficient strategy • Solve contextual problems and questions that have at least three addends (e.g., 153 + 76 + 189) • Create a variety of contextual problems involving join/separate, part-part-whole and comparison	Skill Descriptor: Demonstrate an understanding of addition with sums within 10 000 and the corresponding subtraction in various contexts. Global Competencies: TBD Achievement Indicators: • Identify situations when an approximate answer might be appropriate • Estimate sums and differences up to four-digit numbers according to context and justify the reasonableness • Estimate sums and differences of decimal numbers to tenths according to context and justify the reasonableness • Select and apply an efficient strategy to solve addition and subtraction questions and contextual problems, with or without models (e.g., decomposing and composing numbers based on place value, using multiples of ten to decompose and compose, thinking addition for subtraction or standard algorithm) • Solve contextual problems (join/separate, part-part-whole and compare) using an efficient strategy • Create a variety of contextual problems involving join/separate, part-part-whole and compare	Skill Descriptor: Demonstrate an understanding of addition with sums within 1 000 000 (including decimal numbers to hundredths) and the corresponding subtraction in various contexts. Global Competencies: TBD Achievement Indicators: • Identify situations when an approximate answer might be appropriate • Estimate sums and differences up to six-digit numbers according to context and justify the reasonableness • Estimate sums and differences of decimal numbers to hundredths according to context and justify the reasonableness (i.e., we need to round up in some cases to ensure we have enough) • Select and apply an efficient strategy to solve addition and subtraction questions and contextual problems, (e.g., decomposing and composing numbers based on place value, thinking addition for subtraction or the standard algorithm) • Solve contextual problems (join/separate, part-part-whole and compare) using an efficient strategy • Create a variety of contextual problems involving join/separate, part-part-whole and compare

Skill Descriptor: Demonstrate an understanding of multiplication and division in various contexts using foundational multiplication and related division facts.

Global Competencies: TBD

Achievement Indicators:

- Represent multiplication and division contexts using models and/or symbols for foundational facts (i.e., 1, 2, 5 and 10)
- Explore strategies for solving derived facts for multiplication and division (e.g., doubling/halving, break apart, add/subtract a group, near squares)



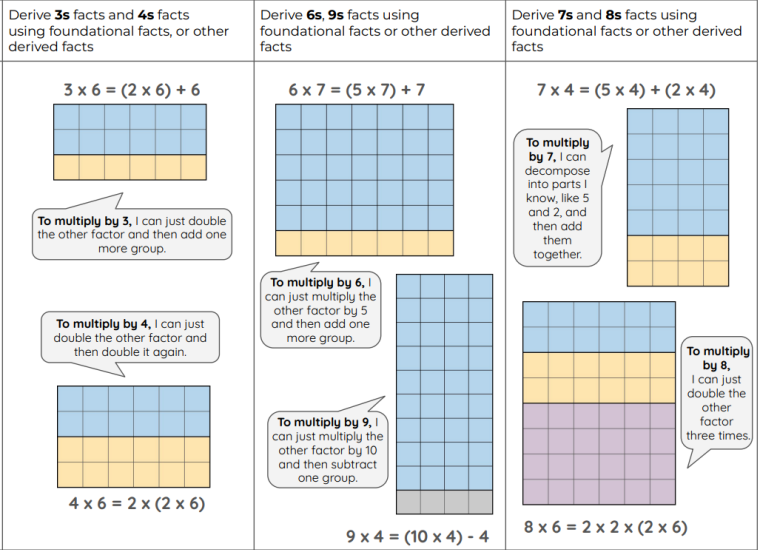
- Explain the identity property of 1 in multiplication and division (e.g., $a \times 1 = a$, $\frac{a}{1} = a$)
- Demonstrate and explain the inverse relationship between multiplication and division using foundational facts ($2 \times 4 = 8$; $8 \div 4 = 2$)

Skill Descriptor: Demonstrate an understanding of multiplication and division in various contexts using multiplication and related division facts to 10 x 10.

Global Competencies: TBD

Achievement Indicators:

- Represent multiplication and division contexts (equal groups, equal shares and comparison) using models and/or symbols for derived facts (9, 4, 8, 3, 6, 7 order is optional, but 7 should be last)
- Select and apply efficient strategies to solve multiplication and related division facts and explain how you solved (i.e., doubling/halving, distributive property, add/subtract a group, near squares)



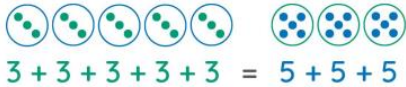
- Apply the inverse relationship between multiplication and division to solve for an unknown (e.g., $48 \div \square = 8$ - think $8 \times 6 = 48$)
- Select and apply efficient personal strategies to solve multiplication and related division facts and explain your strategy (Automatic recall: "I just know it" is an acceptable response)

Skill Descriptor: Demonstrate an understanding of multiplication and division in various contexts using multiplication and related division facts.

Global Competencies: TBD

Achievement Indicators:

- Explain the property of dividing zero by any number (i.e., Zero divided by any number equals zero, $\frac{0}{a} = 0$.)
- Explain the property of dividing by zero (i.e., Any number divided by zero is undefined, $\frac{a}{0} = \text{undefined or not possible.}$)

Operations	- Model the commutative property for multiplication (e.g., $a \times b = b \times a$) $3 \times 5 = 5 \times 3$  Three groups of five is the same value as five groups of three. - Demonstrate that order <i>does</i> affect the quotient when dividing - Solve contextual problems involving equal groups using foundational facts for multiplication and division - Create contextual multiplication and division problems using foundational facts (1, 2, 5 and 10)	- Apply the commutative property for multiplication (e.g., $a \times b = b \times a$) 5×3  - Explain the multiplication property of zero (e.g., $a \times 0 = 0$) - Solve contextual problems involving multiplication and division facts - Create contextual problems involving multiplication and division facts, including equal groups and comparison (e.g., five times as many)	
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Operations	Skill Descriptor: Solve multiplication and related division facts. Global Competencies: TBD Achievement Indicators: • Demonstrate fluency with foundational facts for multiplication and related division facts (1, 2, 5 and 10) • Begin to develop fluency with derived multiplication and related division facts (9, 4, 8, 3, 6, 7 order is optional, but 7 should be last)	Skill Descriptor: Solve multiplication and related division facts. Global Competencies: TBD Achievement Indicators: • Demonstrate fluency with derived multiplication and related division facts (9, 4, 8, 3, 6, 7) • Explain the effect of multiplying any number by 0 • Demonstrate fluency with multiplication and related division facts to 10 x 10	Skill Descriptor: Solve multiplication and related division facts. Global Competencies: TBD Achievement Indicators: • Demonstrate fluency with multiplication and related division facts to 10 x 10 • Apply strategies to develop fluency with multiplication and related division facts for x11 and x12

Skill Descriptor: Solve multiplication problems up to 3-digit by 1 digit and division problems with a 2-digit dividend and a 1-digit divisor (with and without remainders).

Global Competencies: TBD

Achievement Indicators:

- Represent multiplication and division contexts using models
- Apply strategies with efficiency when solving multiplication and division contextual problems (e.g., decomposing, distributive property and commutative property) and justify choice of strategy
- Create contextual problems, including equal groups and comparison (e.g., 8 times as many)
- Estimate products and quotients before solving the problem and justify the reasonableness of the estimate
- Check products and quotients for reasonableness

Skill Descriptor: Solve multiplication problems involving 2-digit by 2-digit and division problems with a 3-digit dividend and a 1-digit divisor (with and without remainders).

Global Competencies: TBD

Achievement Indicators:

- Represent multiplication and division contexts using models
- Apply strategies with efficiency, when solving multiplication and division problems (e.g., decomposing, distributive property, commutative property, doubling and halving, and the standard algorithm) and justify choice of strategy
- Use the properties of the base ten system when multiplying and dividing by 10, 100, 1000 (i.e., each place is 10x larger as you move to the left; 10x smaller as you move to the right)



24 x 10 = _____



- Create contextual problems, including equal groups and comparison (e.g., 40 times as many)
- Estimate products and quotients before solving problems and justify the reasonableness of estimates
- Check products and quotients for reasonableness.
- Explain how the remainder can affect the quotient depending on the context:
 - Round up the quotient – number of five passenger cars needed to transport 23 people
 - Ignore the remainder – sharing \$10 with 3 people
 - Express remainders as fractions – five apples shared by two learners
 - Express remainders as decimals – measurement and money

Strand: Patterns and Relations		
Patterns and Algebra	Skill Descriptor: Create and solve addition and subtraction equations with an unknown represented by a symbol. Global Competencies: TBD Achievement Indicators: - Determine an unknown in an equation with start unknown, change unknown, result unknown (e.g., $15 - 6 = \square$; $\square + 4 = 13$; $6 + \square = 14$) - Explain the purpose of the symbol, such as a square or a circle, in a given addition and in a given subtraction equation, with one unknown - Write and solve an equation with an unknown from a given contextual problem (i.e., start unknown, change unknown, result unknown) - Create a contextual problem when given an equation with one unknown (i.e., start unknown, change unknown, result unknown)	Skill Descriptor: Create and solve multiplication and division equations with an unknown represented by a symbol. Global Competencies: TBD Achievement Indicators: - Determine an unknown in an equation with start unknown, change unknown, result unknown (e.g., $24 \div \square = 3$; $9 \times 6 = \square$; $\square \div 9 = 7$) - Explain the purpose of the symbol, such as a square or circle, in a given multiplication or division equation with one unknown (e.g., $36 \div \square = 6$) - Write and solve an equation with an unknown from a given contextual problem (start unknown, change unknown, result unknown) - Create a contextual problem when given an equation with one unknown (start unknown, change unknown, result unknown)
		Skill Descriptor: Create and solve one-step equations involving addition, subtraction, multiplication, or division with a letter as a variable (limited to whole numbers). OMO: <i>When letters are used in mathematics, they are called variables. In an equation with a coefficient before the variable, such as $6y = 42$, the multiplication sign is understood.</i> Global Competencies: TBD Achievement Indicators: - Explain the purpose of a letter variable in an equation - Solve a given single-variable equation with the variable in multiple places or with a coefficient (e.g., $n + 2 = 5$; $4 + a = 7$; $6 = r - 2$; $10 = 2x$; $4y = 16$; $36 \div n = 4$; $m \div 6 = 7$) - Write and solve an equation with a variable from a given contextual problem - Create a contextual problem when given an equation with a variable

Skill Descriptor: Demonstrate an understanding of increasing and decreasing patterns.

Global Competencies: TBD

Achievement Indicators:

- Identify and extend a repeating pattern with at least 4 terms and 2 attributes that repeat in the different ways (e.g., actions, sounds, colours, shapes, sizes, directions/orientations) and describe the core (i.e., repeating terms)



- Identify and describe the pattern rule for given increasing and decreasing concrete, pictorial and numerical pattern using manipulatives, diagrams, sounds and actions (numbers to 1000)
- Extend an increasing or decreasing concrete, pictorial and numerical pattern for at least three terms with and without models (numbers to 1000)
- Create increasing and decreasing patterns with and without models when given a pattern rule
- Identify and explain an error in a given increasing or decreasing pattern (e.g., 99, 199, 299, 499; 1000, 950, 900, 850, **750**)
- Determine missing terms in a given increasing or decreasing pattern and justify reasoning (e.g., 425, 525, __, 725; 250, 240, 230, 220 __)

Skill Descriptor: Create and describe number patterns found in charts and tables.

Global Competencies: TBD

Achievement Indicators:

- Describe and extend patterns found in a given table or chart

Jamal's Jack Russell								
Month	3	4	5	6	7	8	9	10
Weight	14	20	25	29	32	34	35	35
	+6	+5	+4	+3	+2	+1	+0	

Su Lin's Great Dane									
Month	2	3	4	5	6	7	8	9	10
Weight	10	18	26	32	38	42	46	48	50
	+8	+8	+6	+6	+4	+4	+2	+2	

- Identify an error or missing term in each table or chart pattern

×	0	1	2	3	4	5	6	7	8	9
4	0	1	8	12	16	20	22	28	32	36

- Organize information and create a table to solve and extend patterns from contextual situations

#1	#2	#3	#4	Design #	Number of squares
				1	1
				2	2
				3	3
				4	4

Skill Descriptor: Create and describe number patterns found in a **table of values** and various contexts.

OMO: A table of values is a way to record and organize data, making it easier to see patterns and the relationship between two variables.

Global Competencies: TBD

Achievement Indicators:

- Extend a given pattern with and without concrete materials and explain how each term differs from the preceding one



- Describe pattern rules using mathematical language (e.g., one more, seven less) and/or symbolically (e.g., $r + 1$, $p - 7$) when presented concretely, pictorially or presented in a chart.
- Determine pattern rules to make predictions about subsequent terms (e.g., Predict the n th term in this pattern: 0, 2, 6, 14, 30, __, __, __, __?__; Determine the number of shapes in house #4 and house #8 and verify your answer.)



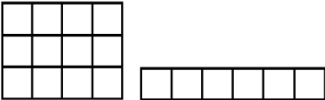
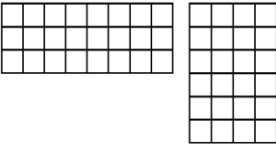
- Determine and explain why a given number is or is not a term in a pattern
- Organize information and create a table of values to solve and extend patterns from contextual situations

Number of Hexagons	Perimeter (units)
1	6
2	10
3	
4	
5	

Day	Gift Card Balance
1	\$25.00
2	\$21.00
3	\$17.00
4	\$13.00

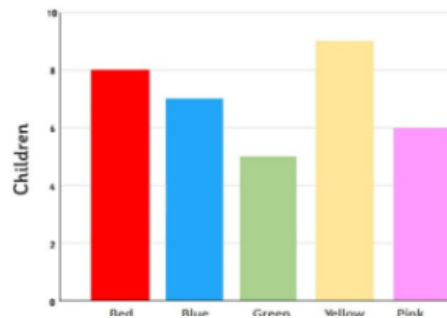
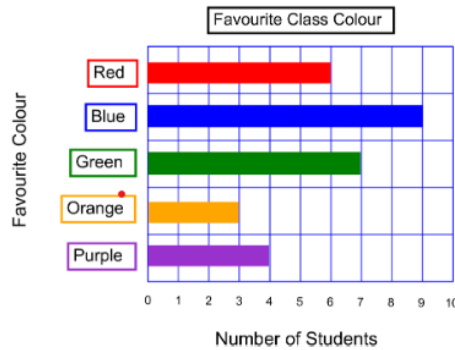
- Write a mathematical expression to represent a given concrete, pictorial or numerical pattern, such as $r + 3$; $r - 1$

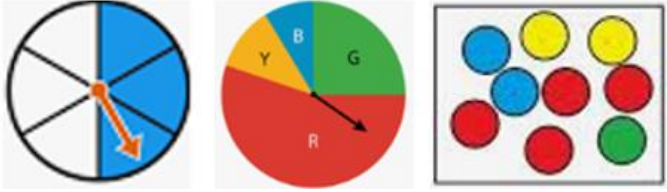
Patterns and Algebra		- Create a variety of number charts and identify the number patterns in each - Solve problems using patterns from tables and charts Who will win the game, if the pattern continues? <table><tr><th colspan="2">Alyssa</th><th colspan="2">Ryan</th></tr><tr><th>Turn</th><th>Number of cards</th><th>Turn</th><th>Number of cards</th></tr><tr><td>3</td><td>16</td><td>3</td><td>21</td></tr><tr><td>4</td><td>14</td><td>4</td><td>18</td></tr><tr><td>5</td><td>12</td><td>5</td><td>15</td></tr></table> - Identify and explain mathematical relationships using diagrams (e.g., Venn diagram) <table><tr><th>Input</th><th>Output</th></tr><tr><td>2</td><td>9</td></tr><tr><td>3</td><td>10</td></tr><tr><td>4</td><td>11</td></tr><tr><td>5</td><td>12</td></tr></table>	Alyssa		Ryan		Turn	Number of cards	Turn	Number of cards	3	16	3	21	4	14	4	18	5	12	5	15	Input	Output	2	9	3	10	4	11	5	12	Describe the relationship in a given table or chart using a mathematical expression (e.g., the rule below could be described as $r + 7$)
	Alyssa		Ryan																														
Turn	Number of cards	Turn	Number of cards																														
3	16	3	21																														
4	14	4	18																														
5	12	5	15																														
Input	Output																																
2	9																																
3	10																																
4	11																																
5	12																																
Strand: Shape and Space																																	
Measurement	Skill Descriptor: Read and record time using digital and analog clocks. Global Competencies: TBD Achievement Indicators: - Express 12-hour time to the minute using an analog clock and a digital clock, exploring the relationship between the two - Record time to the minute - Describe time of day as a.m., p.m., noon, or midnight relative to 12-hour cycles - Record the date according to International Organization for Standardization - ISO (yyyy/mm/dd)	Skill Descriptor: Read and record time using digital and analog clocks. Global Competencies: TBD Achievement Indicators: - Express 24-hour time (e.g., 14:00, 1400 hours) to the minute using an analog clock and a digital clock - Relate 12-hour time to 24-hour time (e.g., 2:00 pm is the same as 14:00) - Record 24-hour time to the minute - Solve problems involving the relationship between units of time - seconds and minutes - minutes and hours	Skill Descriptor: Determine elapsed time. Global Competencies: TBD Achievement Indicators: - Solve problems involving elapsed 12-hour time using the relationships among minutes and hours (e.g., I worked from 8:15 am until 1:05 pm. How long did I work?) - Solve problems involving elapsed 24-hour time using the relationships among minutes and hours (e.g., The sun rose at 05:46 and set at 21:13. What was the duration of sunlight?)																														

Measurement	Skill Descriptor: Demonstrate an understanding of various uses of standard measurement. Global Competencies: TBD Achievement Indicators: • Identify a personal referent for a metre (e.g., height of a doorknob.) • Use personal referents for the standard units of one decimetre (dm), one centimetre (cm), and one metre (m), and estimate length or height of items using those referents • Estimate length or height of items and measure to check for accuracy • Explain which standard unit (dm, cm, m) is the most efficient unit to measure a given length, width, distance (e.g., a pencil, distance across the room, width of a book) • Compare length or height of items using standard units (dm, cm, m) (e.g., compare the height of two kids) • Measure and record the length or height of items using standard units (dm, cm, m) • Create and measure length of line segments in centimetres using a measurement tool (e.g., ruler or measuring tape) • Explain when it is important to have a precise measurement (with standard units) and when an approximate measurement is adequate • Create and solve contextual problems involving length using standard units (dm, cm, m) • Identify personal referents for the standard units of one gram (g) (e.g., a single raisin, paperclip) and one kilogram (kg) (e.g., full lunchbox, bag of apples, large water bottle) and estimate the mass of items using those referents • Measure and compare mass of items using the standard units (g and kg) using a balance scale • Create and solve contextual problems involving mass using standard units (g and kg)	Skill Descriptor: Demonstrate an understanding of various uses of standard measurement. Global Competencies: TBD Achievement Indicators: • Estimate and measure perimeter of 2D shapes (e.g., a poster, a carpet, the classroom floor) using standard units (e.g., decimetre, centimetre, and metre) and explain strategies • Construct different rectangles for a given perimeter to demonstrate that different shaped rectangles can have the same perimeter (e.g., perimeter= 14 units)  • Demonstrate an understanding of area, of regular and irregular 2D shapes, recognizing that area is measured in square units • Identify personal referents for the standard units of one square centimetre (cm²) (e.g., white Cuisenaire rod, base ten unit, small tile) and one square metre (m²) (e.g., small rug or width of a doorway) and estimate the area of spaces using those referents • Estimate and determine area of 2D shapes using standard units (cm², m²), and explain your reasoning • Construct different rectangles for a given area to demonstrate that different shaped rectangles can have the same area  • Identify personal referents for the standard units of one millilitre (mL) (e.g. a raindrop) and one litre (L) (e.g., a small carton of milk, bottle of water), and estimate capacity of containers using those referents • Measure and compare capacity of containers using standard units (mL and L) • Create and solve contextual problems involving capacity using standard units (mL and L)	Skill Descriptor: Demonstrate an understanding of various uses of standard measurement. Global Competencies: TBD Achievement Indicators: • Design and construct rectangles given either perimeter or area (or both) in a problem-solving context and justify your answer (e.g., Simon is going to build an animal pen. He has 24 m of fencing. What would the dimensions of a pen with the greatest area be?) • Identify personal referents for the standard units of one millimetre (mm) (e.g., width of a pencil line, thickness of a dime) and one kilometre (km) (e.g., a 10-to-12-minute walk for a child) • Explain the relationship between standard units of linear measurement (e.g., mm, cm, dm, m, km) • Justify the choice of unit to express various lengths (e.g., mm to measure width of paper clip, cm to measure length of pencil, km to measure distance to the mall) • Identify personal referents for the standard units of one cubic centimetre (cm³) (e.g. a unit cube) and one cubic metre (m³) (e.g., large moving box, a small refrigerator) • Estimate volume of rectangular prisms using personal referents for cm³ and explain the relationship between area of the base and volume • Investigate the relationship and differences between volume and capacity (i.e., volume is the amount of space something takes up and capacity is the amount of liquid or other substance a container can hold)

Commented [CB1]: Construct rectangles on grid paper, for any given area/perimeter, to determine the patterns that result in the greatest area and the least area and draw conclusions.

Geometry	Skill Descriptor: Describe and explore geometric properties of polygons and polyhedrons. <i>OMO: features or rules that describe a shape or an object, including sides, vertices, edges, faces, and angles</i> Global Competencies: TBD Achievement Indicators: - Classify polygons and non-polygons - Describe geometric properties of regular and irregular polygons (e.g., sides, vertices, less-than or greater-than, or equal to a right angle) - Sort and name regular and irregular polygons (including triangles, quadrilaterals, pentagons, hexagons, and octagons) - Explain sorting rules for regular and irregular polygons - Name and describe the properties of polyhedrons (e.g., cube, prisms, and pyramids)	Skill Descriptor: Investigate and classify polygons. Global Competencies: TBD Achievement Indicators: - Identify properties of symmetrical and non-symmetrical 2D shapes (e.g., sides, vertices, less-than or greater-than, or equal to a right angle) - Identify lines of symmetry of a given set of 2D shapes and explain why each shape is symmetrical - Create a symmetrical shape with and without manipulatives and explain the process - Identify properties of congruent 2D shapes - Identify congruent 2D shapes from a given set of shapes shown in different orientations - Create a shape that is congruent to a given 2D shape and explain why the two shapes are congruent	Skill Descriptor: Investigate and classify triangles and perform transformations of 2D shapes. Global Competencies: TBD Achievement Indicators: - Sort and classify triangles according to relative side length (equilateral, scalene, isosceles) - Perform and describe a single transformation (translation, reflection, rotation) <table><tr><th colspan="2">Types of Transformations</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table> - Identify a single transformation, including a translation, rotation and reflection	Types of Transformations					
	Types of Transformations								
									
									

Strand: Statistics and Probability																											
Data and Currency	Skill Descriptor: Investigate and represent firsthand data. Global Competencies: TBD Achievement Indicators: • Explain the difference between firsthand (i.e., a researcher conducting a survey to gather data) and second-hand data (i.e., using statistics from a government report) • Efficiently collect and record firsthand data based on questions of interest • Create data displays with one-to-one correspondence in a bar graph (horizontal and vertical) Favourite Colour <table><tr><th>Colour</th><th>Children</th></tr><tr><td>Red</td><td>8</td></tr><tr><td>Blue</td><td>7</td></tr><tr><td>Green</td><td>5</td></tr><tr><td>Yellow</td><td>9</td></tr><tr><td>Pink</td><td>6</td></tr></table> Favourite Class Colour <table><tr><th>Colour</th><th>Number of Students</th></tr><tr><td>Red</td><td>6</td></tr><tr><td>Blue</td><td>9</td></tr><tr><td>Green</td><td>7</td></tr><tr><td>Orange</td><td>3</td></tr><tr><td>Purple</td><td>4</td></tr></table> • Read and interpret displays of data • Pose questions answered by the data	Colour	Children	Red	8	Blue	7	Green	5	Yellow	9	Pink	6	Colour	Number of Students	Red	6	Blue	9	Green	7	Orange	3	Purple	4	Skill Descriptor: Investigate and represent secondhand data. Global Competencies: TBD Achievement Indicators: • Categorize questions that can be answered effectively with firsthand data and/or second-hand data • Review pertinent sources of second-hand data related to relevant topics and pose questions to draw conclusions • Create data displays from second-hand data sources with many-to-one correspondence in a bar graph, with/without the use of digital technologies • Read, interpret and compare data displays to draw conclusions	Skill Descriptor: Investigate and represent firsthand and secondhand data. Global Competencies: TBD Achievement Indicators: • Interpret and compare multiple sets of data and data displays to draw conclusions • Develop questions that can be answered by multiple sources of data • Select an effective method to collect data for a given investigation (a broader question requiring more than one data source e.g., Should our school have a longer recess?) • Conduct investigations and construct related data displays, including bar graphs, double bar graphs and tables with and without the use of digital technologies
	Colour	Children																									
Red	8																										
Blue	7																										
Green	5																										
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Colour	Number of Students																										
Red	6																										
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Data and Currency	Skill Descriptor: Identify and explore relevant events that involve chance. Global Competencies: TBD Achievement Indicators: - Identify familiar events as “impossible”, “unlikely”, “likely” and “certain” and justify reasoning - Compare the likelihood of two possible outcomes occurring (Is it more likely or less likely to win a classroom draw or a school draw? Why?)	Skill Descriptor: Identify and explore relevant events that involve chance. Global Competencies: TBD Achievement Indicators: - Identify relevant events where one cannot happen if the other happens - Identify relevant events where the chance of one will not be affected by the occurrence of the other - Conduct experiments to explore the probability of outcomes of familiar activities such as flipping a coin, rolling a die and spinning a spinner affect “equal chance”	Skill Descriptor: Identify and explore relevant events that involve chance. Global Competencies: TBD Achievement Indicators: - Create and conduct experiments, and record the likelihood of single outcomes occurring that are impossible, possible, or certain - Create and conduct experiments that will result in “equal chance” and “unequal chance” outcomes 
	Skill Descriptor: Demonstrate an understanding of money and its value. Global Competencies: TBD Achievement Indicators: - Count a mixed combination of coins up to \$10.00 - Count and record a mixed combination of loonies, toonies and bills (e.g., \$16, \$44, \$92) - Select coins to show different ways to represent a given amount up to ten dollars  - Show a given amount of money using the fewest number of bills and coins (e.g., \$7)  - Recognize that not all countries use dollars and cents (e.g., India uses rupee) - Discuss the consequences of overestimating and underestimating cost for a given situation	Skill Descriptor: Demonstrate an understanding of money and its value. Global Competencies: TBD Achievement Indicators: - Count and record a combination of coins and bills up to \$100 - Select Canadian currency to show a given amount of money beyond one dollar - Record a monetary value in dollars and cents using decimal notation (e.g., \$5.25)  - Recognize French and English symbolic representations of monetary values (e.g., English \$5.25; French 5,25 \$) - Identify different ways of earning money to reach a financial goal (e.g., recycling, creating a lemonade stand, doing chores)	Skill Descriptor: Demonstrate an understanding of money and its value. Global Competencies: TBD Achievement Indicators: - Count 2 sets of a given amount of money to determine which is greater/less and by how much - Solve problems involving money using addition and subtraction - Identify various ways to make payments (e.g., cash, credit, cheque, debit, reward systems) - Explain how to keep track of the balance on a gift card and why it is important (e.g., create a chart) - Explore the difference between wants and needs - Identify a “want” and develop a personal saving plan - Create a simple plan to reach a financial goal (e.g., fund raising event; purchasing a large item; contributing to a charity)