Mathematics—Specific Curriculum Outcomes 2015—2016

Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			

NUMBER (N)
GCO: Students will be expected to demonstrate number sense.

<div align="center">SAYING NUMBER SEQUENCES AND SKIP COUNTING</div>

Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
Outcome N01: Students will be expected to say the number sequence by • 1s, from 1 to 20 • 1s, starting anywhere from 1 to 10 and from 10 to 1 [C, CN, V] **Indicators:** N01.01 recite the number sequence from 1 to 20 and from 10 to 1 (COM) N01.02 name the number that comes after a given number, 1 to 9 (COM, CT) N01.03 name the number that comes before a given number, 2 to 10 (COM, CT) N01.04 recite number names from a given number to a stated number (forward 1 to 10, backward 10 to 1) using visual aids (COM, CT)	**Outcome N01:** Students will be expected to say the number sequence by • 1s, forward and backward between any two given numbers, 0 to 100 • 2s to 20, forward starting at 0 • 5s to 100, forward starting at 0, using a hundred chart or a number line • 10s to 100, forward starting at 0, using a hundred chart or a number line [C, CN, V, ME] **Indicators:** N01.01 recite forward by 1s the number sequence between two given numbers, 0 to 100. (COM, CT) N01.02 recite backward by 1s the number sequence between two given numbers, 0 to 100 (COM, CT) N01.03 record a given numeral, 0 to 100, presented orally (COM) N01.04 read a given presented numeral, 0 to 100 (COM) N01.05 skip count by 2s to 20 starting at 0 (COM, CT) N01.06 skip count by 5s to 100 starting at 0, using a hundred chart or a number line (COM, CT, CZ) N01.07 skip count forward by 10s to 100 starting at 0, using a hundred chart or a number line (COM, CT, CZ) N01.08 identify and correct errors and omissions in a given number sequence (COM, CT, CI)	**Outcome N01:** Students will be expected to say the number sequence by • 1s, forward and backward, starting from any point to 200 • 2s, forward and backward, starting from any point to 100 • 5s and 10s, forward and backward, using starting points that are multiples of 5 and 10 respectively to 100 • 10s, starting from any point, to 100 [C, CN, ME, R] **Indicators:** N01.01 extend counting sequence (by 1s), forward and backward (COM, CT, CI) N01.02 extend a given skip-counting sequence (by 2s, 5s, or 10s) forward and backward (COM, CT, CI) N01.03 skip count by 10s, given any number as a starting point (COM, CT, CI) N01.04 identify and correct errors and omissions in a given skip-counting sequence (COM, CT, CI) N01.05 count a given sum of money with pennies, nickels, or dimes (to 100¢) (COM, CT, CI, CZ, PCD) N01.06 count quantity using groups of 2s, 5s, or 10s and counting on (COM, CT, CI)	**Outcome N01:** Students will be expected to say the number sequence forward and backward by • 1s through transitions to 1000 • 2s, 5s, 10s, or 100s, using any starting point to 1000 • 3s, using starting points that are multiples of 3 up to 100 • 4s, using starting points that are multiples of 4 up to 100 • 25s, using starting points that are multiples of 25 up to 200 [C, CN, ME] **Indicators:** N01.01 extend the number sequence by 1s, particularly through transition from decade to decade and century to century (COM, CT) N01.02 extend a given skip counting sequence by 2s, 5s, 10s, or 100s, forward and backward, using a given starting point (COM, CT) N01.03 extend a given skip counting sequence by 3s, forward and backward, starting at a given multiple of 3 up to 100 (COM, CT) N01.04 extend a given skip counting sequence by 4s, forward and backward, starting at a given multiple of 4 up to 100 (COM, CT) N01.05 extend a given skip counting sequence by 25s, forward and backward, starting at a given multiple of 25 up to 200 (COM, CT) N01.06 identify and correct errors and omissions in a given skip counting sequence (COM, CT, CI) N01.07 determine the value of a given set of coins (nickels, dimes, quarters, and loonies) by using skip counting (COM, CT, CI, CZ, PCD) N01.08 identify and explain the skip counting pattern for a given number sequence (COM, CT, CI)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
MEANINGFUL COUNTING			
Outcome N06: Students will be expected to demonstrate an understanding of counting to 10. [C, CN, ME, PS, R, V] **Indicators:** N06.01 answer the question, How many are in the set? using the last number counted in a set (COM, CT) N06.02 in a fixed arrangement, starting in different locations, show that the count of the number of objects in a set does not change (COM, CT, CI) N06.03 count the number of objects in a given set, rearrange the objects, predict the new count, and recount to verify the prediction (COM, CT, CI)	**Outcome N03:** Students will be expected to demonstrate an understanding of counting to 20 by • indicating that the last number said identifies "how many" • showing that any set has only one count • using the counting-on strategy [C, CN, ME, R, V] **Indicators:** N03.01 answer the question, How many are in the set? using the last number counted in a given set (COM, CT) N03.02 identify and correct counting errors in a given counting sequence (COM, CT, CI) N03.03 show that the count of the number of objects in a given set does not change regardless of the order in which the objects are counted (COM, CT) N03.04 record the number of objects in a set using the numeral symbol (COM) N03.05 determine the total number of objects in a given set, starting from a known quantity and counting on (COM, CT, CI) **Outcome N07:** Students will be expected to demonstrate an understanding of conservation of number for up to 20 objects. [C, R, V] **Indicators:** N07.01 explain why for a given number of counters, no matter how they are arranged, the total number of counters does not change. (COM, CT, CI) N07.02 group a set of given counters in more than one way (COM, CT, CI) N07.03 explain why for a given number of counters, no matter how they are grouped, the total number of counters does not change (COM, CT, CI)	**Outcome N04:** Students will be expected to represent and partition numbers to 100. [C, CN, V] **Indicators:** N04.01 represent a given number using concrete materials, such as ten-frames and base-ten materials (COM, CT, CI) N04.02 represent a given number using coins (pennies, nickels, dimes, and quarters) (COM, CT, CI, CZ, PCD) N04.03 represent a given number using tallies (COM, CT, CI) N04.04 represent a given number pictorially (both print and digital) (COM, CT, CI, TF) N04.05 find examples of a given number in the environment (COM, CT, CI, CZ, PCD) N04.06 represent a given number using expressions (e.g., 24 + 6, 15 + 15, 40 − 10) (COM, CT, CI) N04.07 read a number (0–100) given in symbolic or word form (COM) N04.08 record in words a given number (0–20) (COM) N04.09 record, symbolically, any number (0–100) (COM)	**Outcome N01:** Students will be expected to say the number sequence forward and backward by • 1s through transitions to 1000 • 2s, 5s, 10s, or 100s, using any starting point to 1000 • 3s, using starting points that are multiples of 3 up to 100 • 4s, using starting points that are multiples of 4 up to 100 • 25s, using starting points that are multiples of 25 up to 200 [C, CN, ME]

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page 2 of 2

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
ESTIMATE QUANTITY			
N/A	**Outcome N06:** Students will be expected to estimate quantities to 20 by using referents. [C, ME, PS, R, V] **Indicators:** N06.01 estimate a given quantity by comparing it to a given referent (known quantity) (COM, CT, CI, CZ) N06.02 select an estimate for a given quantity by choosing between at least two possible choices and explain the choice (COM, CT, CI, CZ)	**Outcome N06:** Students will be expected to estimate quantities to 100 by using referents. [C, ME, PS, R] **Indicators:** N06.01 estimate a given quantity by comparing it to a referent (known quantity) (COM, CT, CI, CZ, PCD) N06.02 estimate the number of groups of ten in a given quantity using 10 as a referent (COM, CT, CI, CZ, PCD) N06.03 select between two possible estimates for a given quantity and explain the choice (COM, CT, CI, CZ, PCD)	**Outcome N04:** Students will be expected to estimate quantities less than 1000 using referents. [ME, PS, R, V] **Indicators:** N04.01 estimate the number of groups of ten in a given quantity using 10 as a referent (known quantity) (COM, CT, CI, CZ, PCD) N04.02 estimate the number of groups of a hundred in a given quantity using 100 as a referent (COM, CT, CI, CZ, PCD) N04.03 estimate a given quantity by comparing it to a referent (COM, CT, CI, CZ, PCD) N04.04 select an estimate for a given quantity by choosing among three possible choices (COM, CT, CI, CZ, PCD) N04.05 select and justify a referent for determining an estimate for a given quantity (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
ORDINALS			
N/A	N/A	**Outcome N03:** Students will be expected to describe order or relative position using ordinal numbers (up to tenth). [C, CN, R] **Indicators:** N03.01 indicate a position of a specific object in a sequence by using ordinal numbers up to tenth. (COM, CT, CI) N03.02 compare the ordinal position of a specific object in two different given sequences (COM, CT, CI)	**Outcome PR01:** Students will be expected to demonstrate an understanding of increasing patterns by describing, extending, comparing, and creating numerical (numbers to 1000) patterns and non-numerical patterns using manipulatives, diagrams, sounds, and actions. [C, CN, PS, R, V] **Indicators:** PR01.01 identify and describe increasing patterns (COM, CT) PR01.02 describe a given increasing pattern by stating a pattern rule that includes the starting point and a description of how the pattern continues (C0M, CT, CI) PR01.03 extend a pattern, using the pattern rule, for the next three terms (C0M, CT, CI) PR01.04 compare numeric patterns (COM, CT, CI, CZ, PCD) PR01.05 identify and explain errors in a given increasing pattern (C0M, CT, CI) PR01.06 create a concrete, pictorial (both print and digital), or symbolic representation of an increasing pattern for a given pattern rule (COM, CT, CI, CZ, PCD, TF) PR01.07 create a concrete, pictorial (both print and digital), or symbolic increasing pattern and describe the pattern rule (COM, CT, CI, CZ, PCD, TF) PR01.08 solve a given problem using increasing patterns (COM, CT, CI, CZ, PCD) PR01.09 identify and describe the strategy used to determine a missing term in a given increasing pattern (C0M, CT, CI) PR01.10 use ordinal numbers (to 100th) to refer to or to predict terms within an increasing pattern (C0M, CT, CI)

Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
SUBITIZING			
Outcome N02: Students will be expected to recognize, at a glance, and name the quantity represented by familiar arrangements of one to five objects or dots. [C, CN, ME, V] **Indicators:** N02.01 look briefly at a given familiar arrangement of one to five objects or dots and identify the number represented without counting (COM, CT) N02.02 identify the number represented by a given dot arrangement on a five-frame (COM, CT)	**Outcome N02:** Students will be expected to recognize, at a glance, and name the quantity represented by familiar arrangements of 1 to 10 objects or dots. [C, CN, ME, V] **Indicators:** N02.01 look briefly at a given familiar arrangement of objects or dots, and identify the number represented without counting (COM, CT, CI) N02.02 identify the number represented by a given arrangement of counters or dots on a ten-frame (COM, CT, CI)	**N/A**	**N/A**
REPRESENTING AND PARTITIONING WHOLE NUMBERS			
Outcome N04: Students will be expected to represent and describe numbers 2 to 10 in two parts, concretely and pictorially. [C, CN, ME, R, V] **Indicators:** N04.01 show a given number as two parts (using fingers, counters, or other objects) and name the number of objects in each part (COM, CT, CI) N04.02 show a given number as two parts, using pictures, and name the number of objects in each part (COM, CT, CI) **Outcome N03:** Students will be expected to relate a numeral, 1 to 10, to its respective quantity. [CN, R, V] **Indicators:** N03.01 name the number for a given set of objects (COM, CT) N03.02 match numerals with their given pictorial (both print and digital) representations (COM, CT, TF) N03.03 hold up the appropriate number of fingers for a given numeral (COM, CT, CI) N03.04 construct a set of objects corresponding to a given numeral (COM, CT, CI) N03.05 record the numeral that represents the quantity of a given set of objects (COM, CT)	**Outcome N04:** Students will be expected to represent and partition numbers to 20. [C, CN, V] **Indicators:** N04.01 represent a given number up to 20 using a variety of manipulatives, including ten-frames and created materials (COM, CT, CI) N04.02 model a given number up to 20 using a variety of pictorial representations (both print and digital) (COM, CT, CI, TF) N04.03 find examples of a given number in the environment (COM, CT, CI, CZ, PCD) N04.04 place given numerals on a number line with benchmarks 0, 5, 10, 15, and 20 (COM, CT, CI) N04.05 partition any given quantity up to 20 into two parts and identify the number of objects in each part (COM, CT, CI) N04.06 model a given number using two different objects (COM, CT, CI, CZ) **Outcome N07:** Students will be expected to demonstrate an understanding of conservation of number for up to 20 objects. [C, R, V]	**Outcome N04:** Students will be expected to represent and partition numbers to 100. [C, CN, V] **Outcome N02:** Students will be expected to demonstrate if a number (up to 100) is even or odd. [C, CN, PS, R] **Indicators:** N02.01 use concrete materials or pictorial representations (both print and digital) to determine if a given number is even or odd (COM, CT, CI, TF) N02.02 identify even and odd numbers in a given sequence, such as on a hundred chart (COM, CT, CI) N02.03 sort a given set of numbers as even numbers and odd numbers (COM, CT, CI)	**Outcome N02:** Students will be expected to represent and partition numbers to 1000. [C, CN, V] **Indicators:** N02.01 read a given three-digit numeral without using the word "and" (COM) N02.02 read a given number word (0 to 1000) (COM) N02.03 represent a given number as an expression (COM, CT, CI) N02.04 represent a given number concretely and pictorially (both print and digital) in a variety of ways (COM, CT, CI, TF) N02.05 write number words for given multiples of ten to 90 (COM) N02.06 write number words for given multiples of a hundred to 900 (COM) N02.07 record numerals for numbers expressed orally, concretely, or pictorially (both print and digital) (COM, CT, TF)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page 5 of 5

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
COMPARING AND ORDERING WHOLE NUMBERS			
Outcome N05: Students will be expected to compare quantities, 1 to 10, using one-to-one correspondence. [C, CN, V] **Indicators:** N05.01 construct a set to show more than, fewer than, or as many as a given set (COM, CT, CI) N05.02 compare two given sets through direct comparison and describe the sets using words such as "more," "fewer," "as many as," or "the same number as" (COM, CT, CI)	**Outcome N05:** Students will be expected to compare sets containing up to 20 objects to solve problems using referents and one-to-one correspondence. [C, CN, ME, PS, R, V] **Indicators:** N05.01 build a set that has more, fewer, or as many objects as a given set, up to 20 objects (COM, CT, CI) N05.02 build several sets of different objects that have the same given number of objects in the set (COM, CT, CI) N05.03 compare two given sets using one-to-one correspondence and describe them using comparative words, such as more, fewer, or as many (COM, CT, CI) N05.04 compare a set to a given referent using comparative language (COM, CT, CI) N05.05 solve, using pictures and words, given story problems that involve the comparison of two quantities (COM, CT, CI) **Outcome N08:** Students will be expected to identify the number, up to 20, that is one more, two more, one less, and two less than a given number. [C, CN, ME, R, V] **Indicators:** N08.01 name the number that is one more, two more, one less, or two less than a given number, up to 20 (COM, CT, CI) N08.02 represent a number on ten-frames that is one more, two more, one less, or two less than a given number (COM, CT, CI)	**Outcome N05:** Students will be expected to compare and order numbers up to 100. [C, CN, R, V] **Indicators:** N05.01 compare and order a given set of numbers in ascending or descending order and verify the result using a hundred chart, number line, ten-frames, or by making references to place value (COM, CT, CI, CZ, PCD) N05.02 identify errors in a given ordered sequence (COM, CT, CI) N05.03 identify missing numbers in a given hundred chart (COM, CT, CI) N05.04 identify errors in a given hundred chart (COM, CT, CI)	**Outcome N03:** Students will be expected to compare and order numbers up to 1000. [CN, R, V] **Indicators:** N03.01 place a given set of numbers in ascending or descending order and verify the result using a number chart or other models (COM, CT) N03.02 create as many different three-digit numerals as possible, given three different digits. place the numbers in ascending or descending order (COM, CT, CI) N03.03 identify errors in a given ordered sequence (COM, CT, CI) N03.04 identify missing numbers in parts of a given number chart and on a number line (COM, CT, CI) N03.05 identify errors in a given number chart and on a number line (COM, CT, CI) N03.06 place numbers on a number line containing benchmark numbers for the purpose of comparison (COM, CT, CI) N03.07 compare numbers based on a variety of methods, and record the comparison using words and symbols (=, >, and <) (COM, CT, CI)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **6** of **6**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
PLACE VALUE: WHOLE NUMBERS			
N/A	N/A	**Outcome N07:** Students will be expected to illustrate, concretely and pictorially, the meaning of place value for numerals to 100. [C, CN, R, V]	**Outcome N05:** Students will be expected to illustrate, concretely and pictorially, the meaning of place value for numerals to 1000. [C, CN, R, V]
		Indicators: N07.01 explain and show with counters the meaning of each digit for a given two-digit numeral with both digits the same (COM, CT, CI) N07.02 count the number of objects in a given set using groups of 10s and 1s, and record the result as a two-digit numeral under the headings of 10s and 1s (COM, CT, CI) N07.03 describe a given two-digit numeral in at least two ways (COM, CT, CI) N07.04 illustrate using ten-frames and diagrams that a given numeral consists of a certain number of groups of ten and a certain number of ones (COM, CT, CI, CZ) N07.05 illustrate using proportional base-ten materials that a given numeral consists of a certain number of tens and a certain number of ones (COM, CT, CI, CZ) N07.06 explain why the value of a digit depends on its placement within a numeral (COM, CT, CI) N07.07 represent one unit if shown a pre-grouped model representing ten (COM, CT, CI)	**Indicators:** N05.01 record, in more than one way, the number represented by given proportional and non-proportional concrete materials in traditional and non-conventional formats (COM, CT, CI, CZ, PCD) N05.02 represent a given number in different ways using proportional and non-proportional concrete materials and explain how they are equivalent (e.g., 351 can be represented as three 100s, five 10s, and one 1s; or two 100s, fifteen 10s, and one 1s; or three 100s, four 10s, and eleven 1s) (COM, CT, CI, CZ, PCD) N05.03 record a given number in additive expanded form (COM, CT, CI) N05.04 record a number represented by base-ten blocks arranged in a non-conventional format (COM, CT, CI)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page 7 of 7

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
REPRESENTING FRACTIONS			
N/A	N/A	N/A	**Outcome N13:** Students will be expected to demonstrate an understanding of fractions by • explaining that a fraction represents a part of a whole • describing situations in which fractions are used • comparing fractions of the same whole with like denominators [C, CN, ME, R, V] **Indicators:** N13.01 describe everyday situations where fractions are used (COM, CT, CI, CZ, PCD) N13.02 represent a given fraction concretely or pictorially (COM, CT, CI, CZ, PCD) N13.03 identify, model, and explain the meaning of numerator and denominator (COM, CT, CI, CZ, PCD) N13.04 sort a given set of diagrams of regions into those that represent equal parts and those that do not and explain the sorting (COM, CT, CI) N13.05 name and record the fraction represented by the shaded and non-shaded parts of a given region (COM, CT) N13.06 compare given fractions with the same denominator using models (COM, CT, CI)
COMPARING AND ORDERING FRACTIONS			
N/A	N/A	N/A	**Outcome N13:** Students will be expected to demonstrate an understanding of fractions by • explaining that a fraction represents a part of a whole • describing situations in which fractions are used • comparing fractions of the same whole with like denominators [C, CN, ME, R, V]

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **8** of **8**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
ADDITION AND SUBTRACTION: BASIC FACTS			
N/A	N/A	**Outcome N10:** Students will be expected to apply mental mathematics strategies to quickly recall basic addition facts to 18 and determine related subtraction facts. [C, CN, ME, R, V] **Indicators:** N10.01 explain the mental mathematics strategy that could be used to determine basic addition facts. • Doubles Facts • Plus One Facts • One-Apart (Near Doubles) Facts • Plus Two Facts • Plus Zero Facts • Make-10 Facts • Two-Apart Facts • Plus Three Facts (COM, CT, CI) N10.02 use and describe a personal strategy for determining a sum to 18 (COM, CT, CI, CZ, PCD) N10.03 quickly recall basic addition facts to 18 in a variety of contexts (COM, CT, CI, CZ, PCD) N10.04 explain the think-addition strategy used to determine a basic subtraction fact (COM, CT, CI) N10.05 use and describe a personal strategy for determining the subtraction facts (COM, CT, CI, CZ, PCD) **Outcome N08:** Students will be expected to demonstrate and explain the effect of adding zero to or subtracting zero from any number. [C, R] **Indicators:** N08.01 add zero to a given number and explain why the sum is the same as the addend (COM, CT, CI) N08.02 subtract zero from a given number and explain why the difference is the same as the given number (COM, CT, CI)	**Outcome N10:** Students will be expected to apply mental mathematics strategies and number properties to develop quick recall of basic addition facts to 18 and related basic subtraction facts. [C, CN, ME, R, V] **Indicators:** N10.01 describe a mental mathematics strategy that could be used to determine a given basic addition fact up to 9 + 9 (COM, CT, CI) N10.02 explain how the commutative (order-doesn't-matter) property and the identity (no-change-with-zero) property can assist in addition fact learning (COM, CT, CI) N10.03 describe a mental mathematics strategy that could be used to determine a given basic subtraction fact with minuends up to 18 and subtrahends up to 9 (COM, CT, CI) N10.04 recognize which facts could be determined by a given strategy (COM, CT, CI, CZ, PCD) N10.05 quickly recall basic addition facts to 18 and related subtraction facts in a variety of contexts (COM, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)

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SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
ADDITION AND SUBTRACTION: MENTAL MATHEMATICS AND ESTIMATION			
N/A	**Outcome N08:** Students will be expected to identify the number, up to 20, that is one more, two more, one less, and two less than a given number. [C, CN, ME, R, V] **Outcome N10:** Students will be expected to use and describe strategies to determine sums and differences using manipulatives and visual aids. Strategies include • counting on or counting back • one more or one less • making ten • doubles • near doubles [C, CN, ME, PS, R, V] **Indicators:** N10.01 use and describe a personal strategy to determine a sum (COM, CT, CI, CZ, PCD) N10.02 use and describe a personal strategy to determine a difference (COM, CT, CI, CZ, PCD) N10.03 use and describe how two different strategies can be used to determine a sum or difference (COM, CT, CI, CZ, PCD)	**Outcome N08:** Students will be expected to demonstrate and explain the effect of adding zero to or subtracting zero from any number. [C, R] **Outcome N10:** Students will be expected to apply mental mathematics strategies to quickly recall basic addition facts to 18 and determine related subtraction facts. [C, CN, ME, R, V]	**Outcome N06:** Students will be expected to describe and apply mental mathematics strategies for adding two two-digit numerals. [C, ME, PS, R, V] **Indicators:** N06.01 explain mental mathematics strategies that could be used to determine a sum. • Ten and some more • Tens and some more • Quick addition • Addition facts to 10 applied to multiples of 10 • Addition on the hundred chart • Adding on • Make ten • Compensation • Compatible numbers (COM, CT, CI) N06.02 use and describe a personal strategy for determining a sum (COM, CT, CI, CZ, PCD) N06.03 determine a sum of two two-digit numerals efficiently, using mental mathematics strategies (COM, CT, CI, CZ, PCD) **Outcome N07:** Students will be expected to describe and apply mental mathematics strategies for subtracting two two-digit numerals. [C, ME, PS, R, V] **Indicators:** N07.01 explain mental mathematics strategies that could be used to determine a difference. • Facts with minuends of 10 or less applied to multiples of 10 • Quick subtraction • Subtraction on the hundred chart • Compensation • Back through ten (COM, CT, CI) N07.02 use and describe a personal strategy for determining a difference (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **10** of **10**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
			N07.03 determine a difference of two two-digit numerals efficiently, using mental mathematics strategies (COM, CT, CI, CZ, PCD) **Outcome N08:** Students will be expected to apply estimation strategies to predict sums and differences of one-, two-, and three-digit numerals in a problem-solving context. [C, ME, PS, R] **Indicators:** N08.01 explain estimation strategies that could be used to determine an approximate sum or difference (COM, CT, CI, CZ, PCD) N08.02 use and describe a strategy for determining an estimate (COM, CT, CI, CZ, PCD) N08.03 estimate the solution for a given story problem involving the sum or difference of up to two three-digit numerals (COM, CT, CI, CZ, PCD) **Outcome N10:** Students will be expected to apply mental mathematics strategies and number properties to develop quick recall of basic addition facts to 18 and related basic subtraction facts. [C, CN, ME, R, V]

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **11** of 11

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
ADDITION AND SUBTRACTION: CALCULATIONS			
N/A	**Outcome N09:** Students will be expected to demonstrate an understanding of the addition of two single-digit numbers and the corresponding subtraction, concretely, pictorially, and symbolically, in join, separate, equalize/compare, and part-part-whole situations. [C, CN, ME, PS, R, V] **Indicators:** N09.01 act out story problems that are presented orally or through shared reading (COM, CT, CI) N09.02 model story problems with manipulatives or pictures, find and share solutions using counting strategies, and record number sentences that represent how they thought about the problems (COM, CT, CI, CZ, PCD) N09.03 create story problems that connect to student experiences (COM, CT, CI, CZ, PCD) N09.04 create story problems for given number sentences (COM, CT, CI, CZ, PCD) **Outcome N10:** Students will be expected to use and describe strategies to determine sums and differences using manipulatives and visual aids. Strategies include • counting on or counting back • one more or one less • making ten • doubles • near doubles [C, CN, ME, PS, R, V]	**Outcome N08:** Students will be expected to demonstrate and explain the effect of adding zero to or subtracting zero from any number. [C, R] **Outcome N09:** Students will be expected to demonstrate an understanding of addition (limited to one- and two-digit numerals) with answers to 100 and the corresponding subtraction by • using personal strategies for adding and subtracting with and without the support of manipulates • creating and solving problems that involve addition and subtraction • explaining and demonstrating that the order in which numbers are added does not affect the sum • explaining and demonstrating that the order in which numbers are subtracted matters when finding a difference [C, CN, ME, PS, R, V] **Indicators:** N09.01 solve a given story problem of any type by modelling it with materials or a diagram (both print and digital), and write a number sentence that represents the thinking in the solution (COM, CT, CI, CZ, PCD, TF) N09.02 solve a given story problem of any type by writing a number expression and combining the numbers to complete the number sentences (COM, CT, CI, CZ, PCD) N09.03 match a number sentence to a given story problem (COM, CT, CI, CZ, PCD) N09.04 create an addition or a subtraction number sentence and a story problem for a given solution (COM, CT, CI, CZ, PCD) N09.05 model addition and subtraction using concrete materials or visual representations, and record the process symbolically (COM, CT, CI, CZ, PCD) N09.06 add a given set of numbers in two different ways and explain why the sum is the same (COM, CT, CI, CZ, PCD)	**Outcome N09:** Students will be expected to demonstrate an understanding of addition and subtraction of numbers (limited to one-, two-, and three-digit numerals) with answers to 1000 by • using personal strategies for adding and subtracting with and without the support of manipulatives • creating and solving problems in context that involve addition and subtraction of numbers concretely, pictorially, and symbolically [C, CN, ME, PS, R] **Indicators:** N09.01 model the addition of two or more given numbers using concrete or visual representations and record the process symbolically (COM, CT, CI, CZ, PCD) N09.02 model the subtraction of two given numbers using concrete or visual representations and record the process symbolically (COM, CT, CI, CZ, PCD) N09.03 create an addition or subtraction story problem for a given solution (COM, CT, CI, CZ, PCD) N09.04 determine the sum of two given numbers using a personal strategy (e.g., for 326 + 48, record 300 + 60 + 14) (COM, CT, CI, CZ, PCD) N09.05 determine the difference of two given numbers using a personal strategy (e.g., for 127 − 38, record 127 − 20 − 10 − 8) (COM, CT, CI, CZ, PCD) N09.06 solve a given problem involving the sum or difference of two given numbers (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **12** of 12

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
		N09.07 recognize and create equivalent addition and subtraction number sentences (COM, CT, CI, CZ, PCD)	
MULTIPLICATION AND DIVISION			
N/A	N/a	N/A	**Outcome N11:** Students will be expected to demonstrate an understanding of multiplication to 5 × 5 by • representing and explaining multiplication using equal grouping and arrays • creating and solving problems in context that involves multiplication • modelling multiplication using concrete and visual representations and recording the process symbolically • relating multiplication to repeated addition • relating multiplication to division [C, CN, PS, R] **Indicators:** N11.01 identify events from experience that can be described as multiplication (COM, CT, CI, CZ, PCD) N11.02 represent a given story problem (orally, shared reading, written) using manipulatives or diagrams and record in a number sentence (COM, CT, CI, CZ, PCD) N11.03 represent a given multiplication expression as repeated addition (COM, CT, CI, CZ, PCD) N11.04 represent a given repeated addition as multiplication (COM, CT, CI, CZ, PCD) N11.05 create and illustrate a story problem for a given number sentence and/or expression (COM, CT, CI, CZ, PCD) N11.06 represent, concretely or pictorially (both print and digital), equal groups for a given number sentence (COM, CT, CI, CZ, PCD, TF) N11.07 represent a given multiplication expression using an array (COM, CT, CI, CZ, PCD) N11.08 create an array to model the commutative property of multiplication (COM, CT, CI, CZ, PCD) N11.09 relate multiplication to division by using arrays and writing related number sentences (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **13** of **13**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
			SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS

Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
			N11.10 solve a given problem in context involving multiplication (COM, CT, CI, CZ, PCD) **Outcome N12:** Students will be expected to demonstrate an understanding of division by • representing and explaining division using equal sharing and equal grouping • creating and solving problems in context that involve equal sharing and equal grouping • modelling equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically • relating division to repeated subtraction • relating division to multiplication (Limited to division related to multiplication facts up to 5 × 5.) [C, CN, PS, R] **Indicators:** N12.01 identify events from experience that can be described as equal sharing (COM, CT, CI, CZ, PCD) N12.02 identify events from experience that can be described as equal grouping (COM, CT, CI, CZ, PCD) N12.03 illustrate, with counters or a diagram (both print and digital), a given story problem involving equal sharing, presented orally or through shared reading, and solve the problem (COM, CT, CI, CZ, PCD, TF) N12.04 illustrate, with counters or a diagram (both print and digital), a given story problem involving equal grouping, presented orally or through shared reading, and solve the problem (COM, CT, CI, CZ, PCD, TF) N12.05 listen to a story problem, represent the numbers using manipulatives or a diagram (both print and digital) and record the problem with a number sentence and/or expression (COM, CT, CI, CZ, PCD, TF) N12.06 create and illustrate with counters, a story problem for a given number sentence and/or expression (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **14** of **14**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
			N12.07 represent a given division sentence and/or expression as repeated subtraction (COM, CT, CI, CZ, PCD) N12.08 represent a given repeated subtraction as a division sentence (COM, CT, CI, CZ, PCD) N12.09 relate division to multiplication by using arrays and writing related number sentences (COM, CT, CI, CZ, PCD) N12.10 solve a given problem involving division (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **15** of 15

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3

SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS

PATTERNS AND RELATIONS (PR)

Patterns—GCO: Students will be expected to use patterns to describe the world and solve problems.

Variables and Equations—GCO: Students will be expected to represent algebraic expressions in multiple ways.

REPEATING PATTERNS

Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
Outcome PR01: Students will be expected to demonstrate an understanding of repeating patterns (two or three elements) by identifying, reproducing, extending, and creating patterns using manipulatives, sounds, and actions. [C, CN, PS, V] **Indicators:** PR01.01 distinguish between repeating patterns and non-repeating sequences in a given set by identifying the part that repeats (COM, CT) PR01.02 copy a given repeating pattern and describe the pattern (COM, CT) PR01.03 extend a variety of given repeating patterns to two more repetitions (COM, CT, CI) PR01.04 create a repeating pattern using manipulatives, musical instruments, or actions, and describe the pattern (COM, CT, CI) PR01.05 identify and describe a repeating pattern in the classroom, the school, and outdoors (COM, CT, CI, PCD, CZ)	**Outcome PR01:** Students will be expected to demonstrate an understanding of repeating patterns (two to four elements) by describing, reproducing, extending, and creating patterns using manipulatives, diagrams, sounds, and actions. [C, PS, R, V] **Indicators:** PR01.01 describe a given repeating pattern containing two to four elements in its core (COM, CT, CI) PR01.02 identify errors in a given repeating pattern (COM, CT, CI) PR01.03 identify the missing element(s) in a given repeating pattern (COM, CT, CI) PR01.04 create and describe a repeating pattern using a variety of manipulatives, musical instruments, and actions (COM, CT, CI) PR01.05 reproduce and extend a given repeating pattern using manipulatives, diagrams (both print and digital), sounds, and actions (COM, CT, CI, TF) PR01.06 identify and describe a repeating pattern in the environment (e.g., classroom, outdoors) using everyday language (COM, CT, CI, CZ, PCD) PR01.07 identify repeating events (e.g., days of the week, birthdays, seasons) (COM, CT, CI, CZ, PCD) **Outcome PR02:** Students will be expected to translate repeating patterns from one representation to another. [C, R, V] **Indicators:** PR02.01 represent a given repeating pattern using another mode (e.g., actions to sound; colour to shape; ABC, ABC, ABC to blue, yellow, green, blue, yellow, green, blue, yellow, green, …) (COM, CT, CI, CZ, PCD)	**Outcome PR01:** Students will be expected to demonstrate an understanding of repeating patterns (three to five elements) by describing, extending, comparing, and creating patterns using manipulatives, diagrams, sounds, and actions. [C, CN, PS, R, V] **Indicators:** PR01.01 identify the core of a given repeating pattern (COM, CT, CI) PR01.02 describe and extend a given double attribute pattern (COM, CT, CI) PR01.03 create (both print and digital) a repeating non-numerical pattern and explain the rule (COM, CT, CI, TF) PR01.04 predict an element of a given repeating pattern using a variety of strategies and extend the pattern up to the tenth element to verify the prediction (COM, CT, CI) PR01.05 translate a repeating pattern from one mode to another (COM, CT, CI, CZ, PCD) PR01.06 compare two given repeating patterns and describe how they are alike/different (COM, CT, CI, CZ, PCD)	N/A

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
	PR02.02 describe a given repeating pattern using a letter code (e.g., ABC, ABC, ABC, …) (COM, CT, CI, CZ, PCD)		
INCREASING PATTERNS			
N/A	N/A	**Outcome PR02:** Students will be expected to demonstrate an understanding of increasing patterns by describing, extending, and creating numerical patterns (numbers to 100) and non-numerical patterns using manipulatives, diagrams, sounds, and actions. [C, CN, PS, R, V] **Indicators:** PR02.01 identify and describe increasing patterns in a variety of given contexts (COM, CT, CI, CZ, PCD) PR02.02 represent a given increasing pattern concretely and pictorially (both print and digital) (COM, CT, CI, CZ, PCD, TF) PR02.03 identify errors in a given increasing pattern (COM, CT, CI) PR02.04 explain the rule used to create a given increasing pattern (COM, CT, CI) PR02.05 create an increasing pattern (both print and digital) and explain the pattern rule (COM, CT, CI, TF) PR02.06 represent a given increasing pattern using another mode (COM, CT, CI, CZ, PCD) PR02.07 solve a given problem using increasing patterns (COM, CT, CI, CZ, PCD) PR02.08 identify and describe increasing patterns in the environment (COM, CT, CI, CZ, PCD) PR02.09 determine missing terms in a given concrete, pictorial, or symbolic increasing pattern and explain the reasoning (COM, CT, CI, CZ, PCD)	**Outcome PR01:** Students will be expected to demonstrate an understanding of increasing patterns by describing, extending, comparing, and creating numerical (numbers to 1000) patterns and non-numerical patterns using manipulatives, diagrams, sounds, and actions. [C, CN, PS, R, V]

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
DECREASING PATTERNS			
N/A	N/A	N/A	**Outcome PR02:** Students will be expected to demonstrate an understanding of decreasing patterns by describing, extending, comparing, and creating numerical (numbers to 1000) patterns and non-numerical patterns using manipulatives, diagrams, sounds, and actions. [C, CN, PS, R, V] **Indicators:** PR02.01 identify and describe decreasing patterns (COM, CT) PR02.02 describe a given decreasing pattern by stating a pattern rule that includes the starting point and a description of how the pattern continues (COM, CT, CI) PR02.03 extend a pattern using the pattern rule for the next three terms (COM, CT, CI) PR02.04 compare numeric patterns (COM, CT, CI) PR02.05 identify and explain errors in a given decreasing pattern (COM, CT, CI) PR02.06 create a concrete, pictorial, or symbolic representation of a decreasing pattern for a given pattern rule (COM, CT, CI, CZ, PCD) PR02.07 create a concrete, pictorial (both print and digital), or symbolic decreasing pattern and describe the pattern rule (COM, CT, CI, CZ, PCD, TF) PR02.08 solve a given problem using decreasing patterns (COM, CT, CI, CZ, PCD) PR02.09 identify and describe the strategy used to determine a missing term in a given decreasing pattern (COM, CT, CI) PR02.10 use ordinal numbers (to 100th) to refer to or to predict terms within a decreasing pattern (COM, CT, CI)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **18** of **18**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
EQUALITY			
Outcome N05: Students will be expected to compare quantities, 1 to 10, using one-to-one correspondence. [C, CN, V]	**Outcome PR03:** Students will be expected to describe equality as a balance and inequality as an imbalance, concretely and pictorially (0 to 20). [C, CN, R, V] **Indicators:** PR03.01 construct two equal sets using the same objects (same shape and mass) and demonstrate their equality of number using a balance scale (COM, CT, CI) PR03.02 construct two unequal sets using the same objects (same shape and mass) and demonstrate their inequality of number using a balance scale (COM, CT, CI) PR03.03 determine if two given concrete sets are equal or unequal and explain the process used (COM, CT, CI) **Outcome PR04:** Students will be expected to record equalities using the equal symbol. [C, CN, PS, V] **Indicators:** PR04.01 represent a given pictorial (both print and digital) or concrete equality in symbolic form (COM, CT, TF) PR04.02 represent a given equality using manipulatives or pictures (both print and digital) (COM, CT, CI, TF) PR04.03 provide examples of equalities where the given sum or difference is on either the left or right side of the equal symbol (=) (COM, CT, CI) PR04.04 record different representations of the same quantity (0 to 20) as equalities (COM, CT, CI) **Outcome N05:** Students will be expected to compare sets containing up to 20 objects to solve problems using referents and one-to-one correspondence. [C, CN, ME, PS, R, V]	**Outcome PR03:** Students will be expected to demonstrate and explain the meaning of equality and inequality by using manipulatives and diagrams (0 to 100). [C, CN, R, V] **Indicators:** PR03.01 determine whether two given quantities of the same object (same shape and mass) are equal by using a balance scale (COM, CT, CI) PR03.02 construct and draw two unequal sets using the same object (same shape and mass) and explain the reasoning (COM, CT, CI) PR03.03 demonstrate how to change two given sets, equal in number, to create inequality (COM, CT, CI) PR03.04 choose from three or more given sets the one that does not have a quantity equal to the others and explain why (COM, CT, CI) **Outcome PR04:** Students will be expected to record equalities and inequalities symbolically, using the equal symbol or not equal symbol. [C, CN, R, V] **Indicators:** PR04.01 determine whether two sides of a given number sentence are equal (=) or not equal (≠). write the appropriate symbol and justify the answer (COM, CT, CI) PR04.02 model equalities using a variety of concrete representations and record the equality (COM, CT, CI) PR04.03 model inequalities using a variety of concrete representations and record the inequality (COM, CT, CI)	**Outcome PR03:** Students will be expected to solve one-step addition and subtraction equations involving symbols representing an unknown number. [C, CN, PS, R, V] **Indicators:** PR03.01 explain the purpose of the symbol in a given addition and in a given subtraction equation with one unknown (COM, CT, CI) PR03.02 create an addition or subtraction equation with one unknown to represent a given combination or separate action (COM, CT, CI, CZ, PCD) PR03.03 provide an alternative symbol for the unknown in a given addition or subtraction equation (COM, CT, CI, CZ, PCD) PR03.04 solve a given addition or subtraction equation that represents combining or separating actions with one unknown using manipulatives (COM, CT, CI, CZ, PCD) PR03.05 solve a given addition or subtraction equation with one unknown using a variety of strategies including guess and check (COM, CT, CI, CZ, PCD) PR03.06 explain why the unknown in a given addition or subtraction equation has only one value (COM, CT, CI, CZ, PCD)
VARIABLES			
N/A	N/A	N/A	**Outcome PR03:** Students will be expected to solve one-step addition and subtraction equations involving symbols representing an unknown number. [C, CN, PS, R, V]

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **19** of **19**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3

SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS

MEASUREMENT (M)

GCO: Students will be expected to use direct and indirect measure to solve problems.

LENGTH

Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
Outcome M01: Students will be expected to use direct comparison to compare two objects based on a single attribute, such as length, mass, volume, and capacity. [C, CN, PS, R, V] **Indicators:** M01.01 compare the length of two given objects and explain the comparison using words such as "shorter," "longer," "taller," or "almost the same" (COM, CT, CI) M01.02 compare the mass of two given objects and explain the comparison using words such as "lighter," "heavier," or "almost the same" (COM, CT, CI) M01.03 compare the capacity of two given objects and explain the comparison using words such as "holds less," "holds more," or "holds almost the same" (COM, CT, CI) M01.04 compare the volume of two given objects and explain the comparison using words such as "bigger," "smaller," or "almost the same" (COM, CT, CI)	**Outcome M01:** Students will be expected to demonstrate an understanding of measurement as a process of comparing by • identifying attributes that can be compared • ordering objects • making statements of comparison • filling, covering, or matching [C, CN, PS, R, V] **Indicators:** M01.01 identify common attributes, such as length, mass, volume, capacity, and area that could be used to compare a given set of two objects (COM, CT, CI, CZ) M01.02 compare and order two given objects and identify the attributes used to compare (COM, CT, CI, CZ) M01.03 predict which object in a set is longest/shortest, determine by matching and explain the reasoning (COM, CT, CI) M01.04 predict which object in a set is heaviest/lightest, determine by comparing and explain the reasoning (COM, CT, CI) M01.05 predict which object in a set is largest/smallest, determine by comparing and explain the reasoning (COM, CT, CI) M01.06 predict which object in a set holds the most/least, determine by filling and explain the reasoning (COM, CT, CI) M01.07 predict which figure in a set has the greatest/least area, determine by covering and explain the reasoning (COM, CT, CI)	**Outcome M02:** Students will be expected to relate the size of a unit of measure to the number of units (limited to non-standard units) used to measure length and mass. [C, CN, ME, R, V] **Indicators:** M02.01 explain why one of two given non-standard units may be a better choice for measuring the length of an object (COM, CT, CI, CZ, PCD) M02.02 explain why one of two given non-standard units may be a better choice for measuring the mass of an object (COM, CT, CI, CZ, PCD) M02.03 select a non-standard unit for measuring the length or mass of an object and explain why it was chosen (COM, CT, CI, CZ, PCD) M02.04 estimate the number of non-standard units needed for a given measurement task (COM, CT, CI, CZ, PCD) M02.05 explain why the number of units of a measurement will vary depending upon the unit of measure used (COM, CT, CI, CZ, PCD) **Outcome M03:** Students will be expected to compare and order objects by length, height, distance around, and mass using non-standard units and make statements of comparison. [C, CN, ME, R, V] **Indicators:** M03.01 estimate, measure, and record the length, height, distance around, or mass of a given object using non-standard units (COM, CT, CI, CZ, PCD) M03.02 compare and order the measure of two or more objects in ascending or descending order and explain the method of ordering (COM, CT, CI, CZ, PCD)	**Outcome M03:** Students will be expected to demonstrate an understanding of measuring length (cm, m) by • selecting and justifying referents for the units centimetre or metre (cm, m) • modelling and describing the relationship between the units centimetre or metre (cm, m) • estimating length using referents • measuring and recording length, width, and height [C, CN, ME, PS, R, V] **Indicators:** M03.01 provide a personal referent for one centimetre and explain the choice (COM, CT, CI, CZ, PCD) M03.02 provide a personal referent for one metre and explain the choice (COM, CT, CI, CZ, PCD) M03.03 match a given standard unit to a given referent (COM, CT, CI, CZ, PCD) M03.04 show that 100 centimetres is equivalent to 1 metre by using concrete materials (COM, CT, CI) M03.05 estimate the length of an object using personal referents (COM, CT, CI, CZ, PCD) M03.06 determine and record the length and width of a given 2-D shape (COM, CT, CI) M03.07 determine and record the length, width, or height of a given 3-D object (COM, CT, CI) M03.08 draw a line segment of a given length using a ruler (COM, CT, CI) M03.09 sketch a line segment of a given length without using a ruler (COM, CT, CI)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **20** of **20**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
		Outcome M04: Students will be expected to measure length to the nearest non-standard unit by using multiple copies of a unit and using a single copy of a unit (iteration process). [C, ME, R, V] **Indicators:** M04.01 explain why overlapping or leaving gaps does not result in accurate measures (COM, CT, CI, CZ, PCD) M04.02 count the number of non-standard units required to measure the length of a given object using a single copy or multiple copies of a unit (COM, CT, CI) M04.03 estimate and measure a given object using multiple copies of a non-standard unit and using a single copy of the same unit many times, and explain the results (COM, CT, CI, CZ, PCD) M04.04 estimate and measure, using non-standard units, a given length that is not a straight line. (COM, CT, CI, CZ, PCD) **Outcome M05:** Students will be expected to demonstrate that changing the position of an object does not alter the measurements of its attributes. [C, R, V] **Indicators:** M05.01 measure a given object, change the position, remeasure, and explain the results (COM, CT, CI, CZ, PCD)	**Outcome M05:** Students will be expected to demonstrate an understanding of perimeter of regular, irregular, and composite shapes by • estimating perimeter using referents for centimetre or metre (cm, m) • measuring and recording perimeter (cm, m) • create different shapes for a given perimeter (cm, m) to demonstrate that many shapes are possible for a perimeter [C, ME, PS, R, V] **Indicators:** M05.01 measure and record the perimeter of a given regular shape and explain the strategy used (COM, CT, CI, CZ, PCD) M05.02 measure and record the perimeter of a given irregular or composite shape, and explain the strategy used (COM, CT, CI, CZ, PCD) M05.03 construct a shape for a given perimeter (cm, m) (COM, CT, CI, CZ, PCD) M05.04 construct or draw more than one shape for the same given perimeter (COM, CT, CI, CZ, PCD) M05.05 estimate the perimeter of a given shape (cm, m) using personal referents (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **21** of **21**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
MASS			
Outcome M01: Students will be expected to use direct comparison to compare two objects based on a single attribute, such as length, mass, volume, and capacity. [C, CN, PS, R, V]	**Outcome M01:** Students will be expected to demonstrate an understanding of measurement as a process of comparing by • identifying attributes that can be compared • ordering objects • making statements of comparison • filling, covering, or matching [C, CN, PS, R, V]	**Outcome M02:** Students will be expected to relate the size of a unit of measure to the number of units (limited to non-standard units) used to measure length and mass. [C, CN, ME, R, V] **Outcome M03:** Students will be expected to compare and order objects by length, height, distance around, and mass using non-standard units and make statements of comparison. [C, CN, ME, R, V] **Outcome M05:** Students will be expected to demonstrate that changing the position of an object does not alter the measurements of its attributes. [C, R, V]	**Outcome M04:** Students will be expected to demonstrate an understanding of measuring mass (g, kg) by • selecting and justifying referents for the units gram and kilogram (g, kg) • modelling and describing the relationship between the units gram and kilogram (g, kg) • estimating mass using referents • measuring and recording mass [C, CN, ME, PS, R, V] M04.01 provide a personal referent for one gram, and explain the choice (COM, CT, CI, CZ, PCD) M04.02 provide a personal referent for one kilogram, and explain the choice (COM, CT, CI, CZ, PCD) M04.03 match a given standard unit to a given referent (COM, CT, CI, CZ, PCD) M04.04 explain the relationship between 1000 grams and 1 kilogram using a model (COM, CT, CI) M04.05 estimate the mass of a given object using personal referents (COM, CT, CI, CZ, PCD) M04.06 measure, using a balance scale, and record the mass of given everyday objects using the units gram (g) and kilogram (kg) (COM, CT, CI, CZ, PCD) M04.07 provide examples of 3-D objects that have a mass of approximately 1 g, 100 g, and 1 kg (COM, CT, CI, CZ, PCD) M04.08 determine the mass of two given similar objects with different masses and explain the results (COM, CT, CI, CZ, PCD) M04.09 determine the mass of an object, change its shape, re-measure its mass, and explain the results (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **22** of **22**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
VOLUME			
Outcome M01: Students will be expected to use direct comparison to compare two objects based on a single attribute, such as length, mass, volume, and capacity. [C, CN, PS, R, V]	**Outcome M01:** Students will be expected to demonstrate an understanding of measurement as a process of comparing by • identifying attributes that can be compared • ordering objects • making statements of comparison • filling, covering, or matching [C, CN, PS, R, V]	N/A	N/A
CAPACITY			
Outcome M01: Students will be expected to use direct comparison to compare two objects based on a single attribute, such as length, mass, volume, and capacity. [C, CN, PS, R, V]	**Outcome M01:** Students will be expected to demonstrate an understanding of measurement as a process of comparing by • identifying attributes that can be compared • ordering objects • making statements of comparison • filling, covering, or matching [C, CN, PS, R, V]	N/A	N/A
PERIMETER			
N/A	N/A	**Outcome M03:** Students will be expected to compare and order objects by length, height, distance around, and mass using non-standard units and make statements of comparison. [C, CN, ME, R, V]	**Outcome M05:** Students will be expected to demonstrate an understanding of perimeter of regular, irregular, and composite shapes by • estimating perimeter using referents for centimetre or metre (cm, m) • measuring and recording perimeter (cm, m) • create different shapes for a given perimeter (cm, m) to demonstrate that many shapes are possible for a perimeter [C, ME, PS, R, V]
AREA			
N/A	**Outcome M01:** Students will be expected to demonstrate an understanding of measurement as a process of comparing by • identifying attributes that can be compared • ordering objects • making statements of comparison • filling, covering, or matching [C, CN, PS, R, V]	N/A	N/A

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
TIME			
N/A	N/A	**Outcome M01:** Students will be expected to demonstrate an understanding of the calendar and the relationships among days, weeks, months, and years. [C, CN, PS, R] **Indicators:** M01.01 read a calendar (COM, CT, CZ, PCD) M01.02 name and order the days of the week and months of the year (COM, CT, CZ, PCD) M01.03 communicate the number of days in a week and the number of months in a year (COM, CT, CZ, PCD) M01.04 solve a given problem involving time that is limited to the number of days in a week and the number of months in a year (COM, CT, CI, CZ, PCD)	**Outcome M01:** Students will be expected to relate the passage of time to common activities using non-standard and standard units (minutes, hours, days, weeks, months, years). [CN, ME, R] **Indicators:** M01.01 select and use a non-standard unit of measure, such as television shows or pendulum swings, to measure the passage of time, and explain the choice (COM, CT, CI, CZ, PCD) M01.02 identify activities that can or cannot be accomplished in minutes, hours, days, weeks, months, and years (COM, CT, CI, CZ, PCD) M01.03 provide personal referents for minutes and hours (COM, CT, CI, CZ, PCD) M01.04 select and use a standard unit of measure, such as minutes, hours, days, weeks, and months, to measure the passage of time, and explain the choice (COM, CT, CI, CZ, PCD) **Outcome M02:** Students will be expected to relate the number of seconds to a minute, the numbers of minutes to an hour, the numbers of hours to a day, and the number of days to a month in a problem-solving context. [C, CN, PS, R, V] **Indicators:** M02.01 determine the number of days in any given month using a calendar (COM, CT, CZ, PCD) M02.02 solve a given problem involving the number of seconds in a minute, the number of minutes in an hour, the number of hours in a day, or the number of days in a given month (COM, CT, CI, CZ, PCD) M02.03 create a calendar that includes days of the week, dates, and personal events (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
GEOMETRY (G) **3-D Objects and 2-D Shapes—GCO:** Students will be describe the characteristics of 3-D objects and2-D shapes and analyze the relationships among them. **Transformations—GCO:** Students will be expected to describe and analyze position and motion of objects and shapes.			
3-D OBJECTS			
Outcome G01: Students will be expected to sort 3-D objects using a single attribute. [C, CN, PS, R, V] **Indicators:** G01.01 sort a given set of familiar 3-D objects using a single attribute, such as size or shape, and explain the sorting rule (COM, CT, CI) G01.02 explain the sorting rule used to sort a pre-sorted set (COM, CT, CI) **Outcome G02:** Students will be expected to build and describe 3-D objects. [CN, PS, V] **Indicators:** G02.01 create a representation of a given 3-D object using building blocks, and compare the representation to the original 3-D object (COM, CT, CI) G02.01 describe a given 3-D object using words such as big, little, round, like a box, or like a can (COM, CT, CI)	**Outcome G01:** Students will be expected to sort 3-D objects and 2-D shapes using one attribute, and explain the sorting rule. [C, CN, R, V] **Indicators:** G01.01 sort a given set of familiar 3-D objects or 2-D shapes using a given sorting rule (COM, CT, CI) G01.02 sort a given set of familiar 3-D objects using a single attribute determined by the student, and explain the sorting rule (COM, CT, CI) G01.03 sort a given set of 2-D shapes using a single attribute determined by the student, and explain the sorting rule (COM, CT, CI) G01.04 determine the difference between two given pre-sorted sets of familiar 3-D objects or 2-D shapes, and explain a possible sorting rule used to sort them (COM, CT, CI) **Outcome G02:** Students will be expected to replicate composite 2-D shapes and 3-D objects. [CN, PS, V] **Indicators:** G02.01 select 2-D shapes from a given set of 2-D shapes to reproduce a given composite 2-D shape (COM, CT, CI) G02.02 select 3-D objects from a given set of 3-D objects to reproduce a given composite 3-D object (COM, CT, CI) G02.03 predict and select the 2-D shapes used to produce a composite 2-D shape, and verify by deconstructing the composite shape (COM, CT, CI) G02.04 predict and select the 3-D objects used to produce a composite 3-D object, and verify by deconstructing the composite object (COM, CT, CI)	**Outcome G01:** Students will be expected to sort 2-D shapes and 3-D objects using two attributes and explain the sorting rule. [C, CN, R, V] **Indicators:** G01.01 determine the differences between two given presorted sets and explain the sorting rule. (COM, CT, CI) G01.02 identify and name two common attributes of items within a given sorted group (COM, CT, CI) G01.03 sort a given set of 2-D shapes (regular and irregular) according to two attributes and explain the sorting rule (COM, CT, CI) G01.04 sort a given set of 3-D objects according to two attributes and explain the sorting rule (COM, CT, CI) **Outcome G02:** Students will be expected to recognize, name, describe, compare, and build 3-D objects, including cubes and other prisms, spheres, cones, cylinders, and pyramids. [C, CN, R, V] **Indicators:** G02.01 sort a given set of 3-D objects and explain the sorting rule (COM, CT, CI) G02.02 identify common attributes of cubes and other prisms, spheres, cones, cylinders, and pyramids from given sets of the same 3-D objects (COM, CT, CI) G02.03 identify and describe given 3-D objects with different dimensions (COM, CT, CI) G02.04 identify and describe given 3-D objects with different positions (COM, CT, CI) G02.05 create and describe a representation of a given 3-D object using materials such as modelling clay (COM, CT, CI)	**Outcome G01:** Students will be expected to describe 3-D objects according to the shape of the faces and the number of edges and vertices. [C, CN, PS, R, V] **Indicators:** G01.01 identify the faces, edges, and vertices of given 3-D objects, including spheres, cones, cylinders, pyramids, and cubes and other prisms (COM, CT, CI) G01.02 identify the shape of the faces of a given 3-D object (COM, CT, CI) G01.03 determine the number of faces, edges, and vertices of a given 3-D object (COM, CT, CI) G01.04 sort a given set of 3-D objects according to the number of faces, edges, or vertices (COM, CT, CI)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)   Page **25** of **25**

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
	Outcome G03: Students will be expected to identify 2-D shapes in 3-D objects. [C, CN, V] **Indicators:** G03.01 identify the shape of the faces of a 3-D object (COM, CT, CI) G03.02 identify 3-D objects in the environment that have faces that are a given 2-D shape (COM, CT, CI, CA, PCD)	G02.06 identify and name examples of cubes and other prisms, spheres, cones, cylinders, and pyramids found in the environment (COM, CT, CI, CZ, PCD) **Outcome G04:** Students will be expected to identify 2-D shapes as part of 3-D objects in the environment. [C, CN, R, V] **Indicators:** G04.01 compare and match a given 2-D shape, such as a triangle, square, rectangle, or circle, to the faces of 3-D objects in the environment (COM, CT, CI, CZ, PCD) G04.02 name the 2-D faces of a given 3-D object (COM, CT, CI)	
2-D SHAPES			
N/A	**Outcome G03:** Students will be expected to identify 2-D shapes in 3-D objects. [C, CN, V] **Outcome G02:** Students will be expected to replicate composite 2-D shapes and 3-D objects. [CN, PS, V]	**Outcome G03:** Students will be expected to recognize, name, describe, compare and build 2-D shapes, including triangles, squares, rectangles, and circles. [C, CN, R, V] **Indicators:** G03.01 sort a given set of 2-D shapes and explain the sorting rule (COM, CT, CI) G03.02 identify common attributes of triangles, squares, rectangles, and circles from given sets of the same type of 2-D shapes (COM, CT, CI) G03.03 identify given 2-D shapes with different dimensions (COM, CT, CI) G03.04 identify given 2-D shapes with different positions (COM, CT, CI) G03.05 identify and name examples of triangles, squares, rectangles, and circles found in the environment (COM, CT, CI, CZ, PCD) G03.06 create a model to represent a given 2-D shape (COM, CT, CI) G03.07 create a pictorial representation of a given 2-D shape (COM, CT, CI) **Outcome G04:** Students will be expected to identify 2-D shapes as part of 3-D objects in the environment. [C, CN, R, V]	**Outcome G02:** Students will be expected to name, describe, compare, create, and sort regular and irregular polygons, including triangles, quadrilaterals, pentagons, hexagons, and octagons according to the number of sides. [C, CN, R, V] **Indicators:** G02.01 classify a given set of regular and irregular polygons according to the number of sides (COM, CT, CI) G02.02 identify given regular and irregular polygons having different dimensions (COM, CT, CI) G02.03 identify given regular and irregular polygons having different positions (COM, CT, CI) **Outcome G01:** Students will be expected to describe 3-D objects according to the shape of the faces and the number of edges and vertices. [C, CN, PS, R, V]

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)

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Mathematics Primary	Mathematics 1	Mathematics 2	Mathematics 3
SPECIFIC CURRICULUM OUTCOMES AND PERFORMANCE INDICATORS			
STATISTICS AND PROBABILITY (SP) **Data Analysis—GCO:** Students will be expected to collect, display, and analyze data to solve problems. **Variables and Equations—GCO:** Students will be expected to use experimental or theoretical probabilities to represent and solve problems involving certainty.			
DATA MANAGEMENT			
N/A	N/A	**Outcome SP01:** Students will be expected to gather and record data about self and others to answer questions. [C, CN, PS, V] **Indicators:** SP01.01 formulate a question that can be answered by gathering information about self and others (COM, CT, CI, CZ, PCD) SP01.02 organize data as it is collected using concrete objects, tallies, check marks, charts, or lists (COM, CT, CI, CZ, PCD) SP01.03 answer questions using collected data (COM, CT, CI, CZ, PCD) **Outcome SP02:** Students will be expected to construct and interpret concrete graphs and pictographs to solve problems. [C, CN, PS, R, V] **Indicators:** SP02.01 determine the common attributes of concrete graphs by comparing a given set of concrete graphs (COM, CT, CI) SP02.02 determine the common attributes of pictographs by comparing a given set of pictographs (COM, CT, CI) SP02.03 answer questions pertaining to a given concrete graph or pictograph (COM, CT, CI, CZ, PCD) SP02.04 create a concrete graph to display a given set of data and draw conclusions (COM, CT, CI, CZ, PCD) SP02.05 create a pictograph to represent a given set of data using one-to-one correspondence (COM, CT, CI, CZ, PCD) SP02.06 solve a given problem by constructing and interpreting a concrete graph or pictograph (COM, CT, CI, CZ, PCD	**Outcome SP01:** Students will be expected to collect first-hand data and organize it using tally marks, line plots, charts, and lists to answer questions. [C, CN, V] **Indicators:** SP01.01 record the number of objects in a given set using tally marks (COM, CT) SP01.02 determine the common attributes of line plots by comparing line plots in a given set (COM, CT, CI, CZ, PCD) SP01.03 organize a given set of data using tally marks, line plots, charts, or lists (COM, CT, CI, CZ, PCD) SP01.04 collect and organize data using tally marks, line plots, charts, and lists (COM, CT, CI, CZ, PCD) SP01.05 answer questions arising from a given line plot, chart, or list (COM, CT, CI, CZ, PCD) SP01.06 answer questions using collected data (COM, CT, CI, CZ, PCD) **Outcome SP02:** Students will be expected to construct, label, and interpret bar graphs to solve problems. [PS, R, V] **Indicators:** SP02.01 determine the common attributes, title, and axes of bar graphs by comparing bar graphs in a given set (COM, CT, CI, CZ, PCD) SP02.02 create bar graphs (both print and digital) from a given set of data including labelling the title and axes (COM, CT, CI, CZ, PCD, TF) SP02.03 draw conclusions from a given bar graph to solve problems (COM, CT, CI, CZ, PCD) SP02.04 solve problems by constructing and interpreting a bar graph (COM, CT, CI, CZ, PCD)

Mathematical Processes: Communication [C], Problem Solving [PS], Connections [CN], Mental Mathematics and Estimation [ME], Technology [T], Visualization [V], Reasoning [R]

Competency Codes: Citizenship (CZ), Personal-Career Development (PCD), Communication (COM), Creativity and Innovation (CI), Critical Thinking (CT), Technological Fluency (TF)

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