**Curriculum Correlation**

**Master 74a**

**Number Cluster 7: Operational Fluency**

**ON**

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| **Kindergarten** |
| 15.9 compose and decompose quantities to 10 (e.g., make multiple representations of numbers using two or more colours of linking cubes, blocks, dot strips, and other manipulatives; play “shake and spill” games)  15.10 investigate addition and subtraction in everyday experiences and routines through the use of modelling strategies and manipulatives (e.g., join two sets of objects, one containing a greater number than the other, and count all the objects; separate out the smaller number of objects and determine how many remain) and counting strategies (e.g., use a counting sequence to determine how many objects there are altogether; count backward from the largest number to determine how many objects remain) |
| **Grade 1** |
| Number  Operational Sense  – solve a variety of problems involving the addition and subtraction of whole numbers to 20, using concrete materials and drawings (e.g., pictures, number lines) (Sample problem: Miguel has 12 cookies. Seven cookies are chocolate. Use counters to determine how many cookies are not chocolate.) (Activities 28, 29, 30, 31, 32, 33, 34, 35)  – solve problems involving the addition and subtraction of single-digit whole numbers, using a variety of mental strategies (e.g., one more than, one less than, counting on, counting back, doubles) (Activities 28, 29, 30, 31, 32, 33, 34, 35)  Cross Strand: Patterning and Algebra  Expressions and Equality  – create a set in which the number of objects is greater than, less than, or equal to the number of objects in a given set  – demonstrate examples of equality, through investigation, using a “balance” model  – determine, through investigation using a “balance” model and whole numbers to 10, the number of identical objects that must be added or subtracted to establish equality |
| **Grade 2** |
| Number  Operational Sense  – solve problems involving the addition and subtraction of whole numbers to 18, using a variety of mental strategies (e.g., “To add 6 + 8, I could double 6 and get 12 and then add 2 more to get 14.”)  – describe relationships between quantities by using whole-number addition and subtraction (e.g., “If you ate 7 grapes and I ate 12 grapes, I can say that I ate 5 more grapes than you did, or you ate 5 fewer grapes than I did.”)  – represent and explain, through investigation using concrete materials and drawings, multiplication as the combining of equal groups (e.g., use counters to show that 3 groups of 2 is equal to 2 + 2 + 2 and to 3 x 2)  – represent and explain, through investigation using concrete materials and drawings, division as the sharing of a quantity equally (e.g., “I can share 12 carrot sticks equally among 4 friends by giving each person 3 carrot sticks.”)  – solve problems involving the addition and subtraction of two-digit numbers, with and without regrouping, using concrete materials (e.g., base ten materials, counters), student-generated algorithms, and standard algorithms |

**Curriculum Correlation**

**Master 74b**

**Number Cluster 7: Operational Fluency**

**BC/YT**

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| **Kindergarten** |
| Decomposition of numbers to 10   * Part-part-whole thinking * Whole-class number talks   Change in quantity to 10 using concrete materials   * Generalizing change by adding 1 or 2 * Modeling and describing number relationships through change (e.g., build and change tasks - begin with four cubes, what do you need to do to change it to six? to change it to 3?) |
| **Grade 1** |
| Addition and subtraction to 20 (understanding of operation and process)   * Decomposing 20 into parts (Activities 29, 30, 31, 33) * Mental math strategies: – counting on (Activities 28, 29, 31, 32, 33, 34, 35) – making 10 (Activities 29, 32, 33, 34, 35) – doubles (Activities 32, 34, 35) * Addition and subtraction are related (Activities 33, 34, 35) * Whole-class number talks (Activity 35)   Cross Strands:  Change in quantity to 20, concretely and verbally   * Verbally describing a change in quantity (e.g., I can build 7 and make it 10 by adding 3)   Meaning of equality and inequality   * Demonstrating and explaining the meaning of equality and inequality * Recording equations symbolically using = and ≠ |
| **Grade 2** |
| Addition and subtraction facts to 20 (introduction of computational strategies)   * Adding and subtracting numbers to 20 * Fluency with math strategies for addition and subtraction (e.g., making or bridging 10, decomposing, identifying related doubles, adding on to find the difference)   Addition and subtraction to 100   * Decomposing numbers to 100 * Estimating sums and differences to 100 * Using strategies such as looking for multiples of 10, friendly numbers (e.g., 48 + 37, 37 = 35 +2, 48 + 2, 50 + 35 = 85), decomposing into 10s and 1s and recomposing (e.g., 48 + 37, 40 + 30 = 70, 8 +7 = 15, 70 +15 = 85), and compensating (e.g., 48 + 37, 48 +2 = 50, 37 – 2 = 35, 50 + 35 = 80) * Adding up to find the difference * Using an open number line, hundred chart, ten-frames * Using addition and subtraction in real-life contexts and problem-based situations * Whole-class number talks |

**Curriculum Correlation**

**Master 74c**

**Number Cluster 7: Operational Fluency**

**NB/PEI/SK/NWT**

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| **Kindergarten** |
| Number  KN03. Relate a numeral, 1 to 10, to its respective quantity.  KN04. Represent and describe numbers 2 to 10, concretely and pictorially. |
| **Grade 1** |
| Number  1N08. Identify the number, up to 20, that is one more, two more, one less and two less than a given number. (Activities 28, 31)  1N09. Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially and symbolically by:  • using familiar and mathematical language to describe additive and subtractive actions from their experience  • creating and solving problems in context that involve addition and subtraction  • modelling addition and subtraction using a variety of concrete and visual representations, and recording the process symbolically. (Activities 28, 29, 30, 31, 32, 33, 34, 35)  1N10. Describe and use mental mathematics strategies (memorization not intended), such as:  • counting on and counting back  • making 10  • doubles  • using addition to subtract to determine the basic addition facts to 18 and related subtraction facts.  (Activities 28, 29, 30, 31, 32, 33, 34, 35)  Cross Strand:  Patterns and Relations (Variables and Equations)  1PR3. Describe equality as a balance and inequality as an imbalance, concretely and pictorially   (0 to 20).  1PR4. Record equalities using the equal symbol. |

**Curriculum Correlation**

**Master 74d**

**Number Cluster 7: Operational Fluency**

**NB/PEI/SK/NWT (con’t)**

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| **Grade 2** |
| Number  2N08. Demonstrate and explain the effect of adding zero to or subtracting zero from any number.  2N09. Demonstrate an understanding of addition (limited to 1 and 2-digit numerals) with answers to 100 and the corresponding subtraction by:  • using personal strategies for adding and subtracting with and without the support of manipulatives  • creating and solving problems that involve addition and subtraction  • explaining that the order in which numbers are added does not affect the sum  • explaining that the order in which numbers are subtracted may affect the difference.  2N10. Apply mental mathematics strategies, such as:  • using doubles  • making 10  • one more, one less  • two more, two less  • building on a known double  • addition for subtraction  to determine basic addition facts to 18 and related subtraction facts. |

**Curriculum Correlation**

**Master 74e**

**Number Cluster 7: Operational Fluency**

**NS**

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| **Kindergarten** |
| Number  KN03. Students will be expected to relate a numeral, 1 to 10, to its respective quantity.  KN04. Students will be expected to represent and describe numbers 2 to 10 in two parts, concretely and pictorially. |
| **Grade 1** |
| Number  1N08. 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. (Activities 28, 31)  1N09. 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. (Activities 28, 29, 30, 31, 32, 33, 34, 35)  1N10. 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 (Activities 28, 29, 30, 31, 32, 33, 34, 35)  Cross Strand:  Patterns and Relations (Variables and Equations)  1PR3. Students will be expected to describe equality as a balance and inequality as an imbalance, concretely and pictorially (0 to 20).  1PR4. Students will be expected to record equalities using the equal symbol. |
| **Grade 2** |
| Number  2N08. Students will be expected to demonstrate and explain the effect of adding zero to or subtracting zero from any number.  2N09. 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  2N10. Students will be expected to apply mental mathematics strategies to quickly recall basic addition facts to 18 and determine related subtraction facts. |

**Curriculum Correlation**

**Master 74f**

**Number Cluster 7: Operational Fluency**

**AB/NU**

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| **Kindergarten** |
| Number  KN03. Relate a numeral, 1 to 10, to its respective quantity.  KN04. Represent and describe numbers 2 to 10, concretely and pictorially. |
| **Grade 1** |
| Number  1N08. Identify the number, up to 20, that is one more, two more, one less and two less than a given number. (Activities 28, 31)  1N09. Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially and symbolically by:  • using familiar and mathematical language to describe additive and subtractive actions from their experience  • creating and solving problems in context that involve addition and subtraction  • modelling addition and subtraction using a variety of concrete and visual representations, and recording the process symbolically. (Activities 28, 29, 30, 31, 32, 33, 34, 35)  1N10. Describe and use mental mathematics strategies (memorization not intended), such as:  • counting on and counting back  • making 10  • doubles  • using addition to subtract to determine the basic addition facts to 18 and related subtraction facts.  (Activities 28, 29, 30, 31, 32, 33, 34, 35)  Cross Strands:  Patterns and Relations (Variables and Equations)  1PR4. Describe equality as a balance and inequality as an imbalance, concretely and pictorially   (0 to 20).  1PR5. Record equalities using the equal symbol. |

**Curriculum Correlation**

**Master 74g**

**Number Cluster 7: Operational Fluency**

**AB/NU (con’t)**

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| **Grade 2** |
| Number  2N08. Demonstrate and explain the effect of adding zero to or subtracting zero from any number.  2N09. Demonstrate an understanding of addition (limited to 1 and 2-digit numerals) with answers to 100 and the corresponding subtraction by:  • using personal strategies for adding and subtracting with and without the support of manipulatives  • creating and solving problems that involve addition and subtraction  • explaining that the order in which numbers are added does not affect the sum  • explaining that the order in which numbers are subtracted may affect the difference.  2N10. Apply mental mathematics strategies, such as:  • using doubles  • making 10  • one more, one less  • two more, two less  • building on a known double  • addition for subtraction  to determine basic addition facts to 18 and related subtraction facts. |

**Curriculum Correlation**

**Master 74h**

**Number Cluster 7: Operational Fluency**

**NFL**

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| **Kindergarten** |
| Number  KN03. Relate a numeral, 1 to 10, to its respective quantity.  KN04. Represent and describe numbers 2 to 10, in two parts, concretely and pictorially. |
| **Grade 1** |
| Number  1N07. Identify the number, up to 20, that is:  • one more  • two more  • one less  • two less  than a given number. (Activities 28, 31)  1N08. Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially and symbolically, by:  • using familiar mathematical language to describe additive and subtractive actions  • creating and solving problems in context that involve addition and subtraction  • modelling addition and subtraction, using a variety of concrete and visual representations, and recording the process symbolically. (Activities 28, 29, 30, 31, 32, 33, 34, 35)  1N09. Describe and use mental mathematics strategies for basic addition facts and related subtraction facts to 18. (Activities 28, 29, 30, 31, 32, 33, 34, 35)  Cross Strand: Patterns and Relations (Variables and Equations)  1PR3. Describe equality as a balance and inequality as an imbalance, concretely and pictorially  (0 to 20).  1PR4. Record equalities using the equal symbol. (0 to 20). |

**Curriculum Correlation**

**Master 74i**

**Number Cluster 7: Operational Fluency**

**NFL (con’t)**

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| **Grade 2** |
| Number  2N08. Demonstrate and explain the effect of adding zero to or subtracting zero from any number.  2N09. Demonstrate an understanding of addition (limited to 1- and 2-digit numerals) with answers to 100 and the corresponding subtraction by:  • using personal strategies for adding and subtracting with and without the support of manipulatives  • creating and solving problems that involve addition and subtraction  • explaining that the order in which numbers are added does not affect the sum (Commutative Property)  • explaining that the order in which numbers are subtracted may affect the difference..  2N10. Apply mental mathematics strategies, such as:  • counting on and counting back  • making 10  • using Doubles  • using addition to subtract  for basic addition facts to 18 and related subtraction facts. |

**Curriculum Correlation**

**Master 74j**

**Number Cluster 7: Operational Fluency**

**MB**

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| **Kindergarten** |
| Number  KN03. Relate a numeral, 1 to 10, to its respective quantity.  KN04. Represent and describe numbers 2 to 10, in two parts, concretely and pictorially. |
| **Grade 1** |
| Number  1N08. Identify the number, up to 20, that is one more, two more, one less, and two less than a given number. (Activities 28, 31)  1N09. Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially, and symbolically, by   * using familiar and mathematical language to describe additive and subtractive actions from their experience * creating and solving problems in context that involve addition and subtraction * modelling addition and subtraction using a variety of concrete and visual representations, and recording the process symbolically. (Activities 28, 29, 30, 31, 32, 33, 34, 35)   1N10. Describe and use mental mathematics strategies, including   * counting on, counting back * using one more, one less * making 10 * starting from known doubles * using addition to subtract   to determine the basic addition and related subtraction facts to 18.  (Activities 28, 29, 30, 31, 32, 33, 34, 35)  Cross Strand: Patterns and Relations (Variables and Equations)  PR03. Describe equality as a balance and inequality as an imbalance, concretely and pictorially  (0 to 20).  PR04. Record equalities using the equal symbol. (0 to 20). |

**Curriculum Correlation**

**Master 74k**

**Number Cluster 7: Operational Fluency**

**MB (con’t)**

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| **Grade 2** |
| Number  2N08. Demonstrate and explain the effect of adding zero to or subtracting zero from any number.  2N09. Demonstrate an understanding of addition (limited to 1- and 2-digit numerals) with answers to 100 and the corresponding subtraction by:   * using personal strategies for adding and subtracting with and without the support of manipulatives * creating and solving problems that involve addition and subtraction * explaining that the order in which numbers are added does not affect the sum * explaining that the order in which numbers are subtracted may affect the difference   2N10. Apply mental mathematics strategies, including   * using doubles * making 10 * using one more, one less * using two more, two less * building on a known double * using addition for subtraction to develop recall of basic addition facts to 18 and related subtraction facts |