

# Curriculum Correlation

## Number Cluster 7: Operational Fluency

ON

Kindergarten
<p>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)</p> <p>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)</p>
Grade 1
<p>Number Operational Sense</p> <ul style="list-style-type: none"> <li>– 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)</li> <li>– 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)</li> </ul> <p>Cross Strand: Patterning and Algebra Expressions and Equality</p> <ul style="list-style-type: none"> <li>– 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</li> <li>– demonstrate examples of equality, through investigation, using a “balance” model</li> <li>– 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</li> </ul>
Grade 2
<p>Number Operational Sense</p> <ul style="list-style-type: none"> <li>– solve problems involving the addition and subtraction of whole numbers to 18, using a variety of mental strategies (e.g., “To add <math>6 + 8</math>, I could double 6 and get 12 and then add 2 more to get 14.”)</li> <li>– 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.”)</li> <li>– 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 <math>2 + 2 + 2</math> and to <math>3 \times 2</math>)</li> <li>– 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.”)</li> <li>– 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</li> </ul>

# Curriculum Correlation

## Number Cluster 7: Operational Fluency

BC/YT

Kindergarten
<p>Decomposition of numbers to 10</p> <ul style="list-style-type: none"> <li>• Part-part-whole thinking</li> <li>• Whole-class number talks</li> </ul> <p>Change in quantity to 10 using concrete materials</p> <ul style="list-style-type: none"> <li>• Generalizing change by adding 1 or 2</li> <li>• 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?)</li> </ul>
Grade 1
<p>Addition and subtraction to 20 (understanding of operation and process)</p> <ul style="list-style-type: none"> <li>• Decomposing 20 into parts (Activities 29, 30, 31, 33)</li> <li>• Mental math strategies: <ul style="list-style-type: none"> <li>– counting on (Activities 28, 29, 31, 32, 33, 34, 35)</li> <li>– making 10 (Activities 29, 32, 33, 34, 35)</li> <li>– doubles (Activities 32, 34, 35)</li> </ul> </li> <li>• Addition and subtraction are related (Activities 33, 34, 35)</li> <li>• Whole-class number talks (Activity 35)</li> </ul> <p>Cross Strands:</p> <p>Change in quantity to 20, concretely and verbally</p> <ul style="list-style-type: none"> <li>• Verbally describing a change in quantity (e.g., I can build 7 and make it 10 by adding 3)</li> </ul> <p>Meaning of equality and inequality</p> <ul style="list-style-type: none"> <li>• Demonstrating and explaining the meaning of equality and inequality</li> <li>• Recording equations symbolically using = and ≠</li> </ul>
Grade 2
<p>Addition and subtraction facts to 20 (introduction of computational strategies)</p> <ul style="list-style-type: none"> <li>• Adding and subtracting numbers to 20</li> <li>• Fluency with math strategies for addition and subtraction (e.g., making or bridging 10, decomposing, identifying related doubles, adding on to find the difference)</li> </ul> <p>Addition and subtraction to 100</p> <ul style="list-style-type: none"> <li>• Decomposing numbers to 100</li> <li>• Estimating sums and differences to 100</li> <li>• Using strategies such as looking for multiples of 10, friendly numbers (e.g., <math>48 + 37</math>, <math>37 = 35 + 2</math>, <math>48 + 2</math>, <math>50 + 35 = 85</math>), decomposing into 10s and 1s and recomposing (e.g., <math>48 + 37</math>, <math>40 + 30 = 70</math>, <math>8 + 7 = 15</math>, <math>70 + 15 = 85</math>), and compensating (e.g., <math>48 + 37</math>, <math>48 + 2 = 50</math>, <math>37 - 2 = 35</math>, <math>50 + 35 = 80</math>)</li> <li>• Adding up to find the difference</li> <li>• Using an open number line, hundred chart, ten-frames</li> <li>• Using addition and subtraction in real-life contexts and problem-based situations</li> <li>• Whole-class number talks</li> </ul>

# Curriculum Correlation

## Number Cluster 7: Operational Fluency

NB/PEI/SK/NWT

Kindergarten
<p>Number</p> <p>KN03. Relate a numeral, 1 to 10, to its respective quantity.</p> <p>KN04. Represent and describe numbers 2 to 10, concretely and pictorially.</p>
Grade 1
<p>Number</p> <p>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)</p> <p>1N09. Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially and symbolically by:</p> <ul style="list-style-type: none"> <li>• using familiar and mathematical language to describe additive and subtractive actions from their experience</li> <li>• creating and solving problems in context that involve addition and subtraction</li> <li>• 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)</li> </ul> <p>1N10. Describe and use mental mathematics strategies (memorization not intended), such as:</p> <ul style="list-style-type: none"> <li>• counting on and counting back</li> <li>• making 10</li> <li>• doubles</li> <li>• 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)</li> </ul> <p>Cross Strand:</p> <p>Patterns and Relations (Variables and Equations)</p> <p>1PR3. Describe equality as a balance and inequality as an imbalance, concretely and pictorially (0 to 20).</p> <p>1PR4. Record equalities using the equal symbol.</p>

# Curriculum Correlation

## Number Cluster 7: Operational Fluency

NB/PEI/SK/NWT (con't)

**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

## Number Cluster 7: Operational Fluency

NS

Kindergarten
<p>Number</p> <p>KN03. Students will be expected to relate a numeral, 1 to 10, to its respective quantity.</p> <p>KN04. Students will be expected to represent and describe numbers 2 to 10 in two parts, concretely and pictorially.</p>
Grade 1
<p>Number</p> <p>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)</p> <p>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)</p> <p>1N10. Students will be expected to use and describe strategies to determine sums and differences using manipulatives and visual aids. Strategies include</p> <ul style="list-style-type: none"> <li>• counting on or counting back</li> <li>• one more or one less</li> <li>• making ten</li> <li>• doubles</li> <li>• near doubles</li> </ul> <p>(Activities 28, 29, 30, 31, 32, 33, 34, 35)</p> <p>Cross Strand: Patterns and Relations (Variables and Equations)</p> <p>1PR3. Students will be expected to describe equality as a balance and inequality as an imbalance, concretely and pictorially (0 to 20).</p> <p>1PR4. Students will be expected to record equalities using the equal symbol.</p>
Grade 2
<p>Number</p> <p>2N08. Students will be expected to demonstrate and explain the effect of adding zero to or subtracting zero from any number.</p> <p>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</p> <ul style="list-style-type: none"> <li>• using personal strategies for adding and subtracting with and without the support of manipulatives</li> <li>• creating and solving problems that involve addition and subtraction</li> <li>• explaining and demonstrating that the order in which numbers are added does not affect the sum</li> <li>• explaining and demonstrating that the order in which numbers are subtracted matters when finding a difference</li> </ul> <p>2N10. Students will be expected to apply mental mathematics strategies to quickly recall basic addition facts to 18 and determine related subtraction facts.</p>

# Curriculum Correlation

## Number Cluster 7: Operational Fluency

### AB/NU

Kindergarten
<p>Number</p> <p>KN03. Relate a numeral, 1 to 10, to its respective quantity.</p> <p>KN04. Represent and describe numbers 2 to 10, concretely and pictorially.</p>
Grade 1
<p>Number</p> <p>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)</p> <p>1N09. Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially and symbolically by:</p> <ul style="list-style-type: none"> <li>• using familiar and mathematical language to describe additive and subtractive actions from their experience</li> <li>• creating and solving problems in context that involve addition and subtraction</li> <li>• 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)</li> </ul> <p>1N10. Describe and use mental mathematics strategies (memorization not intended), such as:</p> <ul style="list-style-type: none"> <li>• counting on and counting back</li> <li>• making 10</li> <li>• doubles</li> <li>• 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)</li> </ul> <p>Cross Strands:</p> <p>Patterns and Relations (Variables and Equations)</p> <p>1PR4. Describe equality as a balance and inequality as an imbalance, concretely and pictorially (0 to 20).</p> <p>1PR5. Record equalities using the equal symbol.</p>

# Curriculum Correlation

## Number Cluster 7: Operational Fluency

AB/NU (con't)

**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

## Number Cluster 7: Operational Fluency

NFL

Kindergarten
<p>Number</p> <p>KN03. Relate a numeral, 1 to 10, to its respective quantity.</p> <p>KN04. Represent and describe numbers 2 to 10, in two parts, concretely and pictorially.</p>
Grade 1
<p>Number</p> <p>1N07. Identify the number, up to 20, that is:</p> <ul style="list-style-type: none"> <li>• one more</li> <li>• two more</li> <li>• one less</li> <li>• two less</li> </ul> <p>than a given number. (Activities 28, 31)</p> <p>1N08. Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially and symbolically, by:</p> <ul style="list-style-type: none"> <li>• using familiar mathematical language to describe additive and subtractive actions</li> <li>• creating and solving problems in context that involve addition and subtraction</li> <li>• 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)</li> </ul> <p>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)</p> <p>Cross Strand:</p> <p>Patterns and Relations (Variables and Equations)</p> <p>1PR3. Describe equality as a balance and inequality as an imbalance, concretely and pictorially (0 to 20).</p> <p>1PR4. Record equalities using the equal symbol. (0 to 20).</p>

# Curriculum Correlation

## Number Cluster 7: Operational Fluency

NFL (con't)

**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

## Number Cluster 7: Operational Fluency

**MB**

Kindergarten
<p>Number</p> <p>KN03. Relate a numeral, 1 to 10, to its respective quantity.</p> <p>KN04. Represent and describe numbers 2 to 10, in two parts, concretely and pictorially.</p>
Grade 1
<p>Number</p> <p>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)</p> <p>1N09. Demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially, and symbolically, by</p> <ul style="list-style-type: none"> <li>• using familiar and mathematical language to describe additive and subtractive actions from their experience</li> <li>• creating and solving problems in context that involve addition and subtraction</li> <li>• 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)</li> </ul> <p>1N10. Describe and use mental mathematics strategies, including</p> <ul style="list-style-type: none"> <li>• counting on, counting back</li> <li>• using one more, one less</li> <li>• making 10</li> <li>• starting from known doubles</li> <li>• using addition to subtract</li> </ul> <p>to determine the basic addition and related subtraction facts to 18. (Activities 28, 29, 30, 31, 32, 33, 34, 35)</p> <p>Cross Strand: Patterns and Relations (Variables and Equations)</p> <p>PR03. Describe equality as a balance and inequality as an imbalance, concretely and pictorially (0 to 20).</p> <p>PR04. Record equalities using the equal symbol. (0 to 20).</p>

# Curriculum Correlation

## Number Cluster 7: Operational Fluency

**MB (con't)****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