**Curriculum Correlation**

**Master 102a**

**Number Cluster 8: Early Multiplicative Thinking**

Note: Codes to curriculum are for cross-referencing purposes only.

**Ontario**

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| **Curriculum Expectations** | **Mathology Grade 2 Classroom Activity Kit** | **Mathology Little Books** | **Pearson Canada K-3 Mathematics Learning Progression** |
| **Overall Expectation**  **N2 Counting:** demonstrate an understanding of magnitude by counting forward to 200 and backwards from 50, using multiples of various numbers as starting points  **N3 Operational Sense:** solve problems involving the addition and subtraction of one- and two-digit whole numbers, using a variety of strategies, and investigate multiplication and division  **Cross Strand:** Patterning and Algebra  **P1 Patterns and Relationships:** identify, describe, extend, and create repeating patterns, growing patterns, and shrinking patterns  **P2 Expressions and Equality:** demonstrate an understanding of the concept of equality between pairs of expressions, using concrete materials, symbols, and addition and subtraction to 18 | | | |
| **N2.1** Count forward by 1’s, 2’s, 5’s, 10’s, and 25’s to 200, using number lines and hundreds charts, starting from multiples of 1, 2, 5, and 10  **N3.3** represent and explain, through investigation using concrete materials and drawings, multiplication as the combining of  equal groups  **N3.4** represent and explain, through investigation using concrete materials and drawings, division as the sharing of a quantity  equally  **P1.1** identify and describe, through investigation, growing patterns and shrinking patterns generated by the repeated addition or subtraction of 1’s, 2’s, 5’s, 10’s, and 25’s on a number line and on a hundreds chart  **P1.7** demonstrate, through investigation, an understanding that a pattern results from repeating an operation (e.g., addition, subtraction) or making a repeated change to an attribute (e.g., colour, orientation).  **P2.1** demonstrate an understanding of the concept of equality by partitioning whole  numbers to 18 in a variety of ways, using concrete materials | **Below Grade: Intervention**  15: How Many Do You See?  16: Messy and Organize It  **On Grade: Teacher Cards**  37: Grouping in 2s, 5s, and 10s (N2.1, N3.3, N3.4, P2.1)  38: Making Equal Shares (N3.3. N3.4)  39: Making Equal Groups (N3.3, N3.4, P2.1)  40: Exploring Repeated Addition (N2.1, N3.3, P1.1, P1.7)  41: Repeated Addition and Multiplication (N2.1, N3.3, P1.1, P1.7)  42: Early Multiplicative Thinking Consolidation (N2.1, N3.3, N3.4, P1.1, P1.7, P2.1)  **On Grade: Math Every Day**  **Card 8A:** Counting Equal Groups to Find How Many (N2.1)  I Spy (N2.1, N2.14, P1.7)  **Card 8B:** How Many Blocks? (N2.1, N2.14, P1.7)  How Many Ways? (N2.1, N2.14, P1.1, P1.7, P2.1) | **Below Grade:**   * How Many Is Too Many?  (Activities 37, 39, 42)   **On Grade:**   * What Would You Rather? (Activity 37) * Ways to Count  (Activity 37) * Family Fun Day (Activities 37, 39) * The Best Birthday (Activity 38) * Array’s Birthday  (Activities 38, 39, 40, 41, 42) * Marbles, Alleys, Mibs, and Guli! (Activities 39, 40, 41, 42)   **Above Grade:**   * Calla’s Jingle Dress  (Activities 38, 39, 40, 41, 42) * Sports Camp  (Activities 40, 41, 42) * Planting Seeds (Activities 41, 42) | **Big Idea: Numbers tell us how many and how much.** |
| **Applying the Principles of Counting**  - Fluently skip-counts by factors of 10 (e.g., 2, 5, 10) and multiples of 10 from any given number. (Activities 37, 40, 41; MED 8A: 1, 2; MED 8B: 1, 2) |
| **Big Idea: Quantities and numbers can be grouped**  **by or partitioned into equal-sized units.** |
| **Unitizing Quantities and Comparing Units to the Whole**  - Partitions into and skip-counts by equal-sized units and recognizes that the results will be the same when counted by ones (e.g., counting a set by 1s or by 5s gives the same result). (Activities 37, 41; MED 8A: 1, 2)  - Recognizes that, for a given quantity, increasing the number of sets decreases the number of objects in each set. (Activities 37, 39) |
| **Big Idea: Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.** |
| **Developing Conceptual Meaning of Multiplication and Division**  - Groups objects in 2s, 5s, and 10s. (Activities 37, 39, 42, MED 8B: 2)  - Models and solves equal sharing problems to 100. (Activities 38, 42)  - Models and solves equal grouping problems to 100. (Activities 39, 42)  - Uses repeated addition of groups to solve problems. (Activities 40, 41, MED 8B: 1)  - Models equal groups and uses multiplication symbol (×) to symbolize operation. (Activities 41, 42; MED 8A: 2; MED 8B: 1, 2) |
| **Big Idea: Regularity and repetition form patterns**  **that can be generalized and predicted mathematically.** |
| **Representing and Generalizing Increasing/Decreasing Patterns**  - Identifies and extends familiar number patterns and makes connections to addition (e.g., skip-counting by 2s, 5s, 10s). (Activities 40, 41, MED 8A: 2; MED 8B: 1) |
| **Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** |
| **Using Symbols, Unknowns, and Variables to Represent Mathematical Relations**  - Uses the equal (=) symbol in equations and knows its meaning (i.e., equivalent; is the same as). (Activities 40, 41, 42, MED 8A: 2, MED 8B: 2) |

**Master 102a**

**Ontario (continued)**

**Curriculum Correlation**

**Number Cluster 8: Early Multiplicative Thinking**

**Curriculum Correlation**

**Master 102b**

**Number Cluster 8: Early Multiplicative Thinking**

**Alberta/Northwest Territories/Nunavut**

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| **Learning Outcomes** | **Mathology Grade 2 Classroom Activity Kit** | **Mathology Little Books** | **Pearson Canada K-3 Mathematics Learning Progression** |
| **General Outcome**  Develop number sense | | | |
| **Number**  **10.** Apply mental mathematics strategies for basic addition facts and related subtraction facts to 18. | **Below Grade: Intervention**  15: How Many Do You See?  16: Messy and Organize It  **On Grade: Teacher Cards**  37: Grouping in 2s, 5s, and 10s  38: Making Equal Shares  39: Making Equal Groups  40: Exploring Repeated Addition (N10)  41: Repeated Addition and Multiplication  42: Early Multiplicative Thinking Consolidation (N10)  **On Grade: Math Every Day**  **Card 8A:** Counting Equal Groups to Find How Many  I Spy  **Card 8B:** How Many Blocks?  How Many Ways? | **Below Grade:**   * How Many Is Too Many?  (Activities 37, 39, 42)   **On Grade:**   * What Would You Rather? (Activity 37) * Ways to Count  (Activity 37) * Family Fun Day (Activities 37, 39) * The Best Birthday (Activity 38) * Array’s Birthday  (Activities 38, 39, 40, 41, 42) * Marbles, Alleys, Mibs, and Guli! (Activities 39, 40, 41, 42)   **Above Grade:**   * Calla’s Jingle Dress  (Activities 38, 39, 40, 41, 42) * Sports Camp  (Activities 40, 41, 42) * Planting Seeds (Activities 41, 42) | **Big Idea: Numbers tell us how many and how much.** |
| **Applying the Principles of Counting**  - Fluently skip-counts by factors of 10 (e.g., 2, 5, 10) and multiples of 10 from any given number. (Activities 37, 40, 41; MED 8A: 1, 2; MED 8B: 1, 2) |
| **Big Idea: Quantities and numbers can be grouped**  **by or partitioned into equal-sized units.** |
| **Unitizing Quantities and Comparing Units to the Whole**  - Partitions into and skip-counts by equal-sized units and recognizes that the results will be the same when counted by ones (e.g., counting a set by 1s or by 5s gives the same result). (Activities 37, 41; MED 8A: 1, 2)  - Recognizes that, for a given quantity, increasing the number of sets decreases the number of objects in each set. (Activities 37, 39) |
| **Big Idea: Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.** |
| **Developing Conceptual Meaning of Multiplication and Division**  - Groups objects in 2s, 5s, and 10s. (Activities 37, 39, 42, MED 8B: 2)  - Models and solves equal sharing problems to 100. (Activities 38, 42)  - Models and solves equal grouping problems to 100. (Activities 39, 42)  - Uses repeated addition of groups to solve problems. (Activities 40, 41, MED 8B: 1)  - Models equal groups and uses multiplication symbol (×) to symbolize operation. (Activities 41, 42; MED 8A: 2; MED 8B: 1, 2) |
| **Big Idea: Regularity and repetition form patterns**  **that can be generalized and predicted mathematically.** |
| **Representing and Generalizing Increasing/Decreasing Patterns**  - Identifies and extends familiar number patterns and makes connections to addition (e.g., skip-counting by 2s, 5s, 10s). (Activities 40, 41, MED 8A: 2; MED 8B: 1) |
| **Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** |
| **Using Symbols, Unknowns, and Variables to Represent Mathematical Relations**  - Uses the equal (=) symbol in equations and knows its meaning (i.e., equivalent; is the same as). (Activities 40, 41, 42, MED 8A: 2, MED 8B: 2) |

**Curriculum Correlation**

**Master 102b**

**Alberta/Northwest Territories/Nunavut (continued)**

**Curriculum Correlation**

**Number Cluster 8: Early Multiplicative Thinking**

**Master 102c**

**Number Cluster 8: Early Multiplicative Thinking**

**Newfoundland and Labrador**

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| **Specific Outcomes** | **Mathology Grade 2 Classroom Activity Kit** | **Mathology Little Books** | **Pearson Canada K-3 Mathematics Learning Progression** |
| **General Outcome**  Develop number sense | | | |
| **2N10** Apply mental mathematics strategies for basic addition facts and related subtraction facts to 18. | **Below Grade: Intervention**  15: How Many Do You See?  16: Messy and Organize It  **On Grade: Teacher Cards**  37: Grouping in 2s, 5s, and 10s  38: Making Equal Shares  39: Making Equal Groups  40: Exploring Repeated Addition (2N10)  41: Repeated Addition and Multiplication  42: Early Multiplicative Thinking Consolidation (2N10)  **On Grade: Math Every Day**  **Card 8A:** Counting Equal Groups to Find How Many  I Spy  **Card 8B:** How Many Blocks?  How Many Ways? | **Below Grade:**   * How Many Is Too Many?  (Activities 37, 39, 42)   **On Grade:**   * What Would You Rather? (Activity 37) * Ways to Count  (Activity 37) * Family Fun Day (Activities 37, 39) * The Best Birthday (Activity 38) * Array’s Birthday  (Activities 38, 39, 40, 41, 42) * Marbles, Alleys, Mibs, and Guli! (Activities 39, 40, 41, 42)   **Above Grade:**   * Calla’s Jingle Dress  (Activities 38, 39, 40, 41, 42) * Sports Camp  (Activities 40, 41, 42) * Planting Seeds (Activities 41, 42) | **Big Idea: Numbers tell us how many and how much.** |
| **Applying the Principles of Counting**  - Fluently skip-counts by factors of 10 (e.g., 2, 5, 10) and multiples of 10 from any given number. (Activities 37, 40, 41; MED 8A: 1, 2; MED 8B: 1, 2) |
| **Big Idea: Quantities and numbers can be grouped**  **by or partitioned into equal-sized units.** |
| **Unitizing Quantities and Comparing Units to the Whole**  - Partitions into and skip-counts by equal-sized units and recognizes that the results will be the same when counted by ones (e.g., counting a set by 1s or by 5s gives the same result). (Activities 37, 41; MED 8A: 1, 2)  - Recognizes that, for a given quantity, increasing the number of sets decreases the number of objects in each set. (Activities 37, 39) |
| **Big Idea: Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.** |
| **Developing Conceptual Meaning of Multiplication and Division**  - Groups objects in 2s, 5s, and 10s. (Activities 37, 39, 42, MED 8B: 2)  - Models and solves equal sharing problems to 100. (Activities 38, 42)  - Models and solves equal grouping problems to 100. (Activities 39, 42)  - Uses repeated addition of groups to solve problems. (Activities 40, 41, MED 8B: 1)  - Models equal groups and uses multiplication symbol (×) to symbolize operation. (Activities 41, 42; MED 8A: 2; MED 8B: 1, 2) |
| **Big Idea: Regularity and repetition form patterns**  **that can be generalized and predicted mathematically.** |
| **Representing and Generalizing Increasing/Decreasing Patterns**  - Identifies and extends familiar number patterns and makes connections to addition (e.g., skip-counting by 2s, 5s, 10s). (Activities 40, 41, MED 8A: 2; MED 8B: 1) |
| **Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** |
| **Using Symbols, Unknowns, and Variables to Represent Mathematical Relations**  - Uses the equal (=) symbol in equations and knows its meaning (i.e., equivalent; is the same as). (Activities 40, 41, 42, MED 8A: 2, MED 8B: 2) |

**Master 102c**

**Newfoundland and Labrador (continued)**

**Curriculum Correlation**

**Number Cluster 8: Early Multiplicative Thinking**

**Curriculum Correlation**

**Master 102d**

**Number Cluster 8: Early Multiplicative Thinking**

**Nova Scotia**

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| **Specific Outcomes** | **Mathology Grade 2 Classroom Activity Kit** | **Mathology Little Books** | **Pearson Canada K-3 Mathematics Learning Progression** |
| **General Outcome**  Develop number sense | | | |
| **N10** Students will be expected to apply mental mathematics strategies to quickly recall basic addition facts to 18 and determine related subtraction facts. | **Below Grade: Intervention**  15: How Many Do You See?  16: Messy and Organize It  **On Grade: Teacher Cards**  37: Grouping in 2s, 5s, and 10s  38: Making Equal Shares  39: Making Equal Groups  40: Exploring Repeated Addition (N10)  41: Repeated Addition and Multiplication  42: Early Multiplicative Thinking Consolidation (N10)  **On Grade: Math Every Day**  **Card 8A:** Counting Equal Groups to Find How Many  I Spy  **Card 8B:** How Many Blocks?  How Many Ways? | **Below Grade:**   * How Many Is Too Many?  (Activities 37, 39, 42)   **On Grade:**   * What Would You Rather? (Activity 37) * Ways to Count  (Activity 37) * Family Fun Day (Activities 37, 39) * The Best Birthday (Activity 38) * Array’s Birthday  (Activities 38, 39, 40, 41, 42) * Marbles, Alleys, Mibs, and Guli! (Activities 39, 40, 41, 42)   **Above Grade:**   * Calla’s Jingle Dress  (Activities 38, 39, 40, 41, 42) * Sports Camp  (Activities 40, 41, 42) * Planting Seeds (Activities 41, 42) | **Big Idea: Numbers tell us how many and how much.** |
| **Applying the Principles of Counting**  - Fluently skip-counts by factors of 10 (e.g., 2, 5, 10) and multiples of 10 from any given number. (Activities 37, 40, 41; MED 8A: 1, 2; MED 8B: 1, 2) |
| **Big Idea: Quantities and numbers can be grouped**  **by or partitioned into equal-sized units.** |
| **Unitizing Quantities and Comparing Units to the Whole**  - Partitions into and skip-counts by equal-sized units and recognizes that the results will be the same when counted by ones (e.g., counting a set by 1s or by 5s gives the same result). (Activities 37, 41; MED 8A: 1, 2)  - Recognizes that, for a given quantity, increasing the number of sets decreases the number of objects in each set. (Activities 37, 39) |
| **Big Idea: Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.** |
| **Developing Conceptual Meaning of Multiplication and Division**  - Groups objects in 2s, 5s, and 10s. (Activities 37, 39, 42, MED 8B: 2)  - Models and solves equal sharing problems to 100. (Activities 38, 42)  - Models and solves equal grouping problems to 100. (Activities 39, 42)  - Uses repeated addition of groups to solve problems. (Activities 40, 41, MED 8B: 1)  - Models equal groups and uses multiplication symbol (×) to symbolize operation. (Activities 41, 42; MED 8A: 2; MED 8B: 1, 2) |
| **Big Idea: Regularity and repetition form patterns**  **that can be generalized and predicted mathematically.** |
| **Representing and Generalizing Increasing/Decreasing Patterns**  - Identifies and extends familiar number patterns and makes connections to addition (e.g., skip-counting by 2s, 5s, 10s). (Activities 40, 41, MED 8A: 2; MED 8B: 1) |
| **Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** |
| **Using Symbols, Unknowns, and Variables to Represent Mathematical Relations**  - Uses the equal (=) symbol in equations and knows its meaning (i.e., equivalent; is the same as). (Activities 40, 41, 42, MED 8A: 2, MED 8B: 2) |

**Master 102d**

**Newfoundland and Labrador (continued)**

**Curriculum Correlation**

**Number Cluster 8: Early Multiplicative Thinking**

**Curriculum Correlation**

**Master 102e**

**Number Cluster 8: Early Multiplicative Thinking**

**Saskatchewan**

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| **Specific Outcomes** | **Mathology Grade 2 Classroom Activity Kit** | **Mathology Little Books** | **Pearson Canada K-3 Mathematics Learning Progression** |
| **General Outcome**  Develop number sense | | | |
| **N2.1** Demonstrate understanding of whole numbers to 100 (concretely, pictorially, physically, orally, in writing, and symbolically) by:   * N2.1a representing (including place value) * N2.1b describing * **N2.1c skip counting** * N2.1d differentiating between odd and even numbers * N2.1e estimating with referents * N2.1f comparing two numbers * N2.1g ordering three or more numbers | **Below Grade: Intervention**  15: How Many Do You See?  16: Messy and Organize It  **On Grade: Teacher Cards**  37: Grouping in 2s, 5s, and 10s (N2.1c)  38: Making Equal Shares  39: Making Equal Groups  40: Exploring Repeated Addition  41: Repeated Addition and Multiplication  42: Early Multiplicative Thinking Consolidation  **On Grade: Math Every Day**  **Card 8A:** Counting Equal Groups to Find How Many  I Spy  **Card 8B:** How Many Blocks?  How Many Ways? | **Below Grade:**   * How Many Is Too Many?  (Activities 37, 39, 42)   **On Grade:**   * What Would You Rather? (Activity 37) * Ways to Count  (Activity 37) * Family Fun Day (Activities 37, 39) * The Best Birthday (Activity 38) * Array’s Birthday  (Activities 38, 39, 40, 41, 42) * Marbles, Alleys, Mibs, and Guli! (Activities 39, 40, 41, 42)   **Above Grade:**   * Calla’s Jingle Dress  (Activities 38, 39, 40, 41, 42) * Sports Camp  (Activities 40, 41, 42) * Planting Seeds (Activities 41, 42) | **Big Idea: Numbers tell us how many and how much.** |
| **Applying the Principles of Counting**  - Fluently skip-counts by factors of 10 (e.g., 2, 5, 10) and multiples of 10 from any given number. (Activities 37, 40, 41; MED 8A: 1, 2; MED 8B: 1, 2) |
| **Big Idea: Quantities and numbers can be grouped**  **by or partitioned into equal-sized units.** |
| **Unitizing Quantities and Comparing Units to the Whole**  - Partitions into and skip-counts by equal-sized units and recognizes that the results will be the same when counted by ones (e.g., counting a set by 1s or by 5s gives the same result). (Activities 37, 41; MED 8A: 1, 2)  - Recognizes that, for a given quantity, increasing the number of sets decreases the number of objects in each set. (Activities 37, 39) |
| **Big Idea: Quantities and numbers can be grouped by, and partitioned into, units to determine how many or how much.** |
| **Developing Conceptual Meaning of Multiplication and Division**  - Groups objects in 2s, 5s, and 10s. (Activities 37, 39, 42, MED 8B: 2)  - Models and solves equal sharing problems to 100. (Activities 38, 42)  - Models and solves equal grouping problems to 100. (Activities 39, 42)  - Uses repeated addition of groups to solve problems. (Activities 40, 41, MED 8B: 1)  - Models equal groups and uses multiplication symbol (×) to symbolize operation. (Activities 41, 42; MED 8A: 2; MED 8B: 1, 2) |
| **Big Idea: Regularity and repetition form patterns**  **that can be generalized and predicted mathematically.** |
| **Representing and Generalizing Increasing/Decreasing Patterns**  - Identifies and extends familiar number patterns and makes connections to addition (e.g., skip-counting by 2s, 5s, 10s). (Activities 40, 41, MED 8A: 2; MED 8B: 1) |
| **Big Idea: Patterns and relations can be represented with symbols, equations, and expressions.** |
| **Using Symbols, Unknowns, and Variables to Represent Mathematical Relations**  - Uses the equal (=) symbol in equations and knows its meaning (i.e., equivalent; is the same as). (Activities 40, 41, 42, MED 8A: 2, MED 8B: 2) |

**Master 102e**

**Saskatchewan (continued)**

**Curriculum Correlation**

**Number Cluster 8: Early Multiplicative Thinking**