### Houghton Mifflin Expressions

**Grade 3**

2007–2008 Mathematics Curriculum Guides

<table>
<thead>
<tr>
<th>Wisconsin Mathematics Standard</th>
<th>MPS Learning Target</th>
<th>Wisconsin Assessment Descriptors for Mathematics (For Beginning Grade 4)</th>
<th>Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Throughout The Year</td>
<td>A. Mathematical Processes</td>
<td>Note: Mathematical processes need to be embedded in all mathematical strands throughout the school year. Math processes are assessed on the WKCE-CRT and reported as a separate proficiency area. For example, students are asked to provide written justifications and explanations, pose problems, and represent concepts.</td>
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<td></td>
<td>1) <strong>Reasoning</strong>: Use reasoning and logic to:</td>
<td>• Perceive patterns • Identify relationships • Formulate questions • Pose problems • Make conjectures • Justify strategies • Test reasonableness of results</td>
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<td>2) <strong>Communication</strong>: Communicate mathematical ideas and reasoning using the vocabulary of mathematics in a variety of ways (e.g., using words, numbers, symbols, pictures, charts, tables, diagrams, graphs, and models).</td>
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<td>3) <strong>Connections</strong>: Connect mathematics to the real world as well as within Mathematics.</td>
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<td>4) <strong>Representations</strong>: Create and use representations to organize, record, and communicate mathematical ideas.</td>
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<td></td>
<td>5) <strong>Problem Solving</strong>: Solve and analyze routine and non-routine problems.</td>
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<tr>
<td>Time</td>
<td>Curricular Connections Units/Lessons</td>
<td>MPS Learning Targets</td>
<td>Wisconsin State Framework Assessment Descriptors</td>
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<tr>
<td>January 3 teaching days</td>
<td>Take time to teach any lessons that have not yet been completed.</td>
<td>Number Operations and Relationships #1</td>
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<td></td>
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<td>Communicate and use fluent and flexible strategies to represent and compare numbers, estimate, and solve real-world addition and subtraction problems including money. (D.1, D.2, D.3, 5.6, 5.7)</td>
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<tr>
<td>February 20 teaching days</td>
<td>Unit D Area and Perimeter&lt;br&gt;D.1 Explore Perimeter and Area (G, M, NO&amp;R)&lt;br&gt;D.2 Relate Area and Perimeter (G, M, NO&amp;R)&lt;br&gt;D.3 Formulas for Area and Perimeter (G, M, NO&amp;R, AR)</td>
<td>Number Operations and Relationships #2</td>
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<td>Represent and use concepts of multiplication (e.g., grouping, arrays, skip counting, repeated addition) and division (i.e., sharing, measuring, repeated subtraction) to solve problems with and without context. (D.1, D.2, D.3, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9)</td>
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<td>Number Operations and Relationships</td>
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<td>B.a:2 Read, write, and represent numbers using words, numerals, pictures (e.g., base ten blocks), number lines, arrays, expanded forms (243=200+40+3) and symbolic renaming e.g., 243=250-7. (D.1, D.2, D.3, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.9)</td>
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<td>B.a:3 Compare and order whole numbers less than 10,000. (5.6, 5.7)</td>
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<td>B.a:4 Count by 2s, 3s, 5s, 10s, 25s, and 100s starting with any multiple and 100s starting with any number. Identify and name counting patterns. (D.1, D.2, D.3, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9)</td>
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<td>B.b.: 8 Use addition and subtraction in everyday situations and solve one and two-step word problems. (D.1,D.2, D.3, 5.6, 5.7)</td>
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<td>B.bb:10 Demonstrate understanding of multiplication as grouping or repeated addition or arrays in problems with and without context (without context up to 5 x 9; in context products up to 100). (D.1, D.2, D.3, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9)</td>
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<td>February (continued)</td>
<td>5.8 Square Numbers (G, M, NO &amp;R, AR)</td>
<td>Number Operations and Relationships #3</td>
<td>B.b:11 Demonstrate understanding of the concept of division as repeated subtraction, partitioning/sharing, or measuring (dividend up to 45 and divisors up to 5). (5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9)</td>
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<td>5.9 Practice with 6s, 7s, and 8s (G, M, NO&amp;AR)</td>
<td>Use part-whole and set models to represent, compare, and solve problems with fractions less than, equal to, and greater than one whole. (5.6, 5.7)</td>
<td>B.a:6 Identify a fractional part of a collection/set or parts of a whole. (5.6, 5.7)</td>
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<td>Geometry #4</td>
<td>Describe, compare, and use properties of polygons (2-D) and polyhedra (3-D) when they are combined, decomposed, and transformed (e.g., slides, flips, and turns), and identify locations of figures on a coordinate system. (D.1, D.2, D.3)</td>
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<td>Measurement #5</td>
<td>Use appropriate standard and non-standard units to compare and estimate measurable attributes of objects, including area and perimeter, and make simple unit conversions within a measurement system. (D.1, D.2, D.3, 5.2, 5.4)</td>
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<td>Statistics and Probability #7</td>
<td>Formulate questions that lead to real-world data investigations, collect, organize, and display data, and draw reasonable conclusions based on the data. (5.7)</td>
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</table>

**Geometry**

C.a:1 Identify, describe and compare properties of 2 and 3 dimensional figures such as squares, triangles, rectangles, pentagon, hexagon, octagon, pattern block shapes, circles, cubes, pyramids, rectangular prisms, tetrahedrons, cylinders, and spheres (e.g. comparing sides, faces, corners, and edges). (D.1, D.2, D.3, 5.2, 5.4, 5.8)  

**Measurement**

D.b:8 Investigate measurements of area and perimeter. (D.1, D.2, D.3, 5.2, 5.4, 5.8)  

**Statistics and Probability**

E.a:3 Draw reasonable conclusions based on simple interpretations of data. (5.7)  

E.a:4 Read, use information, and draw reasonable conclusions from data in graphs, tables, charts, and Venn diagrams (5.7)  

**Algebraic Relationships**

F.a:1 Recognize, extend, describe, create, and replicate a variety of patterns including attribute, number and geometric patterns. Such as:  
- Picture patterns  
- Patterns in tables and charts  
- “What’s-my-rule?” patterns  
- Patterns using addition and subtraction rules  

Focusing on relationships within patterns as well as extending patterns e.g., patterns and relationships represented with pictures, tables and charts; “what’s-my-rule?” patterns using

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Curriculum Guide Expressions Grade 3  
3rd Quarter  
Version 1.0  

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Algebraic Relationships #9
Describe, extend, and make generalizations about geometric and numeric patterns, including odd and even numbers. (5.1, 5.2, 5.3, 5.5, 5.8, 5.9)

Algebraic Relationships #10
Explain the meaning of the equals sign, use symbols to represent problem situations, and use properties and relationships to solve open and true/false number sentences. (D.1, D.2, D.3, 5.1, 5.2, 5.3, 5.5, 5.6, 5.7, 5.9)

addition and subtraction rules. (5.1, 5.2, 5.3, 5.5, 5.8, 5.9)

F.b:3 Demonstrate an understanding that the “=” sign means “the same as” by solving open or true/false number sentences. (D.1, D.2, D.3, 5.1, 5.2, 5.3, 5.5, 5.6, 5.7, 5.9)

F.b:4 Use notation to represent mathematical thinking: letter or box (variable); operation symbols (+,-,=). (D.1, D.2, D.3, 5.1, 5.2, 5.3, 5.5, 5.6, 5.7, 5.8, 5.9)

F.b:5 Demonstrate a basic understanding of equality and inequality using symbols (<,>,=) with simple addition and subtraction. (5.3, 5.5, 5.6, 5.7, 5.9)

F.c:6 Use properties and relationships of arithmetic to determine what number goes in a “box” to make a number sentence true. (5.1, 5.2, 5.3, 5.5, 5.6, 5.7, 5.8, 5.9)

• Identify property of zero. Ex: 12 + 0 = “box”
• Identify property of one. Ex: 5 x 1 = “box”
• Commutative property for addition of single-digits
• Associative property

F.c:7 Use simple equations in a variety of ways to demonstrate the properties. (5.1, 5.2, 5.3, 5.5, 5.6, 5.7, 5.8, 5.9)

Number Operations and Relationships
<table>
<thead>
<tr>
<th>March 14 teaching days</th>
<th>Unit 5 Multiplication and Division with 6, 7, and 8 and Problem Solving</th>
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</thead>
<tbody>
<tr>
<td><strong>5.10</strong></td>
<td>Solve Mixed Word Problems (NO&amp;R, AR)</td>
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<tr>
<td><strong>5.11</strong></td>
<td>Solve Multi-Step Word Problems (NO&amp;R, AR)</td>
</tr>
<tr>
<td><strong>5.12</strong></td>
<td>Solve Complex Multi-Step Word Problems (NO&amp;R, AR)</td>
</tr>
<tr>
<td><strong>5.13</strong></td>
<td>Play Multiplication and Division Games (NO&amp;R, AR)</td>
</tr>
<tr>
<td><strong>5.14</strong></td>
<td>Word Problem Day (NO&amp;R, AR, Stats/Prob)</td>
</tr>
</tbody>
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**Unit E Time**

**E.1** Tell Time (M)
**E.2** Elapsed Time (M)
**E.3** Clock Angles (M) (optional - skip if you are behind pacing)

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**Number Operations and Relationships #1**

Communicate and use fluent and flexible strategies to represent and compare numbers, estimate, and solve real-world addition and subtraction problems including money. (5.10, 5.11, 5.12, 5.13, 5.14)

**Number Operations and Relationships #2**

Represent and use concepts of multiplication (e.g., grouping, arrays, skip counting, repeated addition) and division (i.e., sharing, measuring, repeated subtraction) to solve problems with and without context. (5.10, 5.11, 5.12, 5.13, 5.14)

**Measurement #6**

Read and interpret customary and metric measuring instruments and determine time to the nearest minute and elapsed time in real-world situations. (E.1, E.2, E.3)

**Statistics and Probability #7**

Formulate questions that lead to real-world data investigations, collect, organize, and display data, and draw reasonable conclusions based on the data. (5.14)

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**B.a:**

- **4** Count by 2s, 3s, 5s, 10s, 25s, and 100s starting with any multiple and 100s starting with any number. Identify and name counting patterns. (5.10, 5.11, 5.12, 5.13, 5.14)

**B.b:**

- **8** Use addition and subtraction in everyday situations and solve one and two-step word problems. (5.10, 5.11, 5.12, 5.13, 5.14)

**B.b:**

- **10** Demonstrate understanding of multiplication as grouping or repeated addition or arrays in problems with and without context (without context up to 5 x 9; in context products up to 100). (5.10, 5.11, 5.12, 5.13, 5.14)

**B.b:**

- **11** Demonstrate understanding of the concept of division as repeated subtraction, partitioning/sharing, or measuring (dividend up to 45 and divisors up to 5). (5.10, 5.11, 5.12, 5.13, 5.14)

**Measurement**

- **D.b:**

  - **6** Tell time to the nearest minute and translate time from analog to digital clocks and vice versa. (E.1, E.2, E.3)

  - **7** Determine and compare elapsed time in multiples of 15 minutes in problem-solving situations. (E.1, E.2, E.3)

**Statistics and Probability**

- **E.a:**

  - **2** Collect, organize, and display data in simple bar graphs and charts including translating data from one form to the other. (5.14)

  - **3** Draw reasonable conclusions based on simple interpretations of data. (5.14)

  - **4** Read, use information, and draw reasonable conclusions from data in graphs, tables, charts, and Venn diagrams (5.14)

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**Algebraic Relationships**

MPS Number Operations & Relationships CABS #1, #2, #3, #4, #5, #8, #9a, #9b, #10, #11

MPS Measurement CABS #9a, #9b

MPS Statistics & Probability CABS #13a, #13b, #13c

MPS Algebraic Relationships CABS #4, #8, #9
Algebraic Relationships #10
Explain the meaning of the equals sign, use symbols to represent problem situations, and use properties and relationships to solve open and true/false number sentences. (5.10, 5.11, 5.12, 5.13, 5.14)

F.b:3 Demonstrate an understanding that the “=” sign means “the same as” by solving open or true/false number sentences. (5.10, 5.11, 5.12, 5.13, 5.14)

F.b:4 Use notation to represent mathematical thinking: letter or box (variable); operation symbols (+, -, =). (5.10, 5.11, 5.12, 5.13, 5.14)

F.b:5 Demonstrate a basic understanding of equality and inequality using symbols (<, >, =) with simple addition and subtraction. (5.10, 5.11, 5.12, 5.13, 5.14)

F.c:6 Use properties and relationships of arithmetic to determine what number goes in a “box” to make a number sentence true. (5.10, 5.11, 5.12, 5.13, 5.14)
  - Identify property of zero. Ex: 12 + 0 = “box”
  - Identify property of one. Ex: 5 x 1 = “box”
  - Commutative property for addition of single-digits
  - Associative property

F.c:7 Use simple equations in a variety of ways to demonstrate the properties. (5.10, 5.11, 5.12, 5.13, 5.14)

Number Operations & Relationships

B.a:6 Identify a fractional part of a collection/set or parts of a
April 9 teaching days

Unit 6 Exploring Fractions, Probability, and Division with Remainders
6.1 Fractions as Parts of a Whole (NO&R)
6.2 Fractions as Parts of a Set (NO&R)
6.3 Unit Fractions of Sets and Numbers (NO&R)
6.4 Compare with Fractions (NO&R, Stats/Prob)
6.5 Practice Fractional Comparisons (NO&R, Stats/Prob)
6.6 Find a Fraction of a Set or Number (NO&R)
6.7 Fractions on Circle Graphs (NO&R, AR, Stats/Prob)

Number Operations and Relationships #3
Use part-whole and set models to represent, compare, and solve problems with fractions less than, equal to, and greater than one whole. (6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7)

Statistics and Probability #7
Formulate questions that lead to real-world data investigations, collect, organize, and display data, and draw reasonable conclusions based on the data. (6.4, 6.5, 6.7)

Algebraic Relationships #10
Explain the meaning of the equals sign, use symbols to represent problem situations, and use properties and relationships to solve open and true/false number sentences. (6.7)

B.a:7 Read, write, order, and represent unit fractions (e.g., 1/2, 1/3, 1/4) and part(s) of a set. (6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7)
B.b:12 Use fractions to represent quantities when solving problems involving equal sharing or partitioning including fractions less than one as well as mixed numbers. (6.3, 6.4, 6.5, 6.6, 6.7)
B.b:13 Represent fractions with shaded circles, rods, squares or pictorial representations of objects (for a set). (6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7)

Statistics and Probability
E.a:3 Draw reasonable conclusions based on simple interpretations of data. (6.4, 6.5, 6.6)
E.a:4 Read, use information, and draw reasonable conclusions from data in graphs, tables, charts, and Venn diagrams (6.4, 6.5, 6.6)

Algebraic Relationships
F.b:3 Demonstrate an understanding that the “=” sign means “the same as” by solving open or true/false number sentences. (6.7)
F.b:4 Use notation to represent mathematical thinking: letter or box (variable); operation symbols (+,-,=). (6.7)

Adjustments made to the 3rd quarter curriculum guide reflect feedback from teachers regarding the pacing in the 1st & 2nd quarter guide. Please note that continuing at this pace could inhibit completion of the math program as it is written. The committee recommends teachers to consider combining similar mathematical ideas. This may assist students in developing a deeper conceptual understanding of mathematics as well as help to improve the current pacing as outlined in the 3rd quarter curriculum guide.