## B. Number Operations and Relationships
### Grade 6

<table>
<thead>
<tr>
<th>MPS Learning Target #1 (Grade 6)</th>
<th>MPS Learning Target #2 (Grade 6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Represent and rename numbers, identify prime and composite numbers, and use factors, multiples, and prime factorization to solve and explain problems.</td>
<td>Apply, explain, and evaluate strategies to estimate, compare, and compute fractions, decimals, and percents using a variety of methods (e.g., mental computation, technology, manipulatives) with and without context.</td>
</tr>
</tbody>
</table>

### Descriptors

- **Concepts:**
  2, 4, 7
- **Computation:**
  12

- **Concepts:**
  1, 3, 5, 6, 7
- **Computation:**
  8, 9, 10, 11, 12

### Wisconsin Sub-skill Descriptors (Beginning of Grade 7)

#### Sub-skill B.a: Concepts

1. Recognize and apply place-value concepts to numbers less than 10,000,000 with decimals to the thousandths place.

2. Read, write, and represent numbers using words, numerals, number lines, arrays, and expanded form (12.09 = 10 + 2 + 0.09) and symbolic renaming (12.09 = 13 – 0.91).

3. Compare and order a set of fractions or decimals (to the hundredths place) and use symbols (<, >, =, ≠, ≤, ≥).

4. Identify and use number theory concepts:
   - Prime and composite numbers
   - Divisibility potential of numbers (divisors of 1-10, 25, and multiples of 10).
   - Least common multiples
   - Greatest common factor of two numbers

5. Demonstrate understanding of fractions and benchmark percents in problems and context. (E.g., Joe got six questions correct and two were wrong, what percent did he get correct?)

6. Apply proportional reasoning to a variety of problem situations (e.g., comparisons and/or rates).

7. Identify equivalent forms of fractions, decimals, and percents.

#### Sub-skill B.b: Computation

8. Use all operations in everyday situations (including monetary contexts) to solve single or multi-step word problems.
   - Solve problems involving percents with and without context.
   - Add and subtract decimals including thousandths with and without context.
   - Multiply decimals including hundredths with and without context.
   - Divide decimals including hundredths by single-digit divisors in problems with and without context.

9. Demonstrate understanding of the concept of division of fractions in a contextual setting.

10. Add, subtract, and multiply mixed numbers and fractions with like and unlike denominators.

11. Estimate the sum, difference, and product of whole numbers, common fractions, mixed numbers, and decimals to thousandths and estimate benchmark fractions.

12. Determine reasonableness of answers.
C. Geometry  
Grade 6

<table>
<thead>
<tr>
<th>MPS Learning Target #3 (Grade 6)</th>
<th>MPS Learning Target #4 (Grade 6)</th>
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<tbody>
<tr>
<td>Identify and contrast properties of polygons and polyhedra (e.g., sides, angles, symmetry, faces) and draw or describe relationships (e.g., congruency, regularity, similarity, decomposition, transformations) of figures from multiple perspectives.</td>
<td>Use specifications to plot, construct, and transform points and shapes using the coordinate plane.</td>
</tr>
</tbody>
</table>

**Descriptors**
- Describing figures: 1, 2, 3, 4, 5
- Spatial relationships and transformations: 6, 7, 8, 9, 10, 11, 12

**Wisconsin Sub-skill Descriptors (Beginning of Grade 7)**

**Sub-skill C.a: Describing figures**
1) Name regular and irregular polygons up to eight sides and identify and justify by characteristics whether a shape is a polygon.
2) Determine the number of faces, edges and vertices given an illustration of a 3-dimensional figure.
3) Classify shapes according to characteristics such as parallel and perpendicular lines; identify right, acute and obtuse angles with varied orientations.
4) Find the measure of the third angle of a triangle when given the measures of two interior angles.
5) Decompose convex polygons into triangles using diagonals from a single vertex.

**Sub-skill C.b: Spatial relationships and transformations**
6) Draw and/or describe a similar figure when given a polygon drawn on graph paper with vertices at lattice points.
7) Identify figures that are congruent and/or similar.
8) Demonstrate understanding of similarity by finding the relationship between the sides of two figures.
9) Draw or identify the image of a figure based on one or more transformations (reflection, rotations, and/or translation).
10) Design symmetrical shapes.
11) Draw or identify lines of symmetry.
12) Identify and describe 3-dimensional figures from multiple perspectives.

**Sub-skill C.c: Coordinate systems**
13) Identify, locate, plot coordinates in the four quadrants and transformations of points across the x- or y-axis.
14) Locate or plot coordinates in the four quadrants using a geometric figure (e.g. transformations).
D. Measurement
Grade 6

<table>
<thead>
<tr>
<th>MPS Learning Target #5</th>
<th>MPS Learning Target #6</th>
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<tbody>
<tr>
<td>(Grade 6)</td>
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<tr>
<td>Estimate and measure attributes of objects (including angles) and make unit conversions within and between customary and metric systems.</td>
<td>Estimate and determine perimeter/circumference, area, distance, and elapsed time in real-world contexts and explain strategies.</td>
</tr>
</tbody>
</table>

**Descriptors**
- Measurable attributes: 1, 2
- Direct measurement: 3, 5
- Indirect measurement: 6, 7, 8

**Wisconsin Sub-skill Descriptors (Beginning of Grade 7)**

**Sub-skill D.a: Measurable attributes**

1) Select the appropriate unit of measure to estimate the length, liquid capacity, volume, weight/mass of everyday objects using U.S. customary and metric.

2) Convert units within a system e.g., feet to yards; ounces to pounds; inches to feet; pints to quarts. Approximate conversions of units between metric and U.S. customary systems using a model or in context (quart/liter; yard/meter).

**Sub-skill D.b: Direct measurement**

3) Apply appropriate tools and techniques to measure down to the nearest 1/4-, 1/8-, or 1/16-inch or nearest centimeter or millimeter.

4) Determine and compare elapsed time in problem-solving situations.

5) Measure and/or draw angles up to 180 degrees.

**Sub-skill D.c: Indirect measurement**

6) Estimate area given a reference.

7) Determine perimeter/circumference and area of squares, rectangles, triangles, parallelograms, and circles in real-world context.

8) Determine the distance between points using a scale.
### E. Statistics and Probability

#### Grade 6

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<thead>
<tr>
<th>MPS Learning Target #7 (Grade 6)</th>
<th>MPS Learning Target #8 (Grade 6)</th>
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<tbody>
<tr>
<td>Interpret and summarize data sets and displays using measures of central tendency and variation (e.g., range), and evaluate hypotheses and multiple representations for a given data set.</td>
<td>Gather and display data from experiments and analyze outcomes based on theoretical and experimental probabilities to determine likelihood and fairness of events and to solve problems.</td>
</tr>
</tbody>
</table>

**Descriptors**
- Data analysis and statistics: 1, 2, 3, 4, 5, 6

**Wisconsin Sub-skill Descriptors (Beginning of Grade 7)**

#### Sub-skill E.a: Data analysis and statistics

1. Summarize data sets in tables, charts, and diagrams with and without context.
2. Evaluate a set of data to generate or confirm/deny hypotheses.
3. Extract, interpret, and analyze data from tables, simple stem-and-leaf plots, simple bar graphs, line plots, line graphs, simple circle graphs, charts and diagrams.
4. Create graph with one-variable data sets using simple stem-and-leaf plots, bar graphs, circle graphs, line plots and line graphs; discuss appropriateness of graphs selected.
5. Find mean, median (with odd set of data), mode and range of a set of data with and without context.

#### Sub-skill E.b: Probability

7. Determine the likelihood of an event and probability based on one independent event, (e.g., spinning the arrow on a spinner).
8. Use probabilities to estimate outcomes and evaluate fair and unfair simple events.
9. Use data from simulations provided in charts/tables to solve and interpret probability problems.
10. Describe and determine the number of combinations of selecting 3 items from 4 or more items.
11. Solve problems involving sample spaces or diagrams.
12. Analyze outcomes based on an understanding of theoretical and experimental probability.
### F. Algebraic Relationships

#### Grade 6

<table>
<thead>
<tr>
<th>MPS Learning Target #9</th>
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<tbody>
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<tr>
<td>Analyze, identify, and extend patterns and functional relationships in sequences, tables, and graphs, and describe graphs of real-world situations.</td>
<td>Represent problem situations with mathematical models, justify solutions to equations with letter-variables, and compare expressions using order of operations and numerical properties.</td>
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**Descriptors**

Patterns, relations and functions: 1, 2, 3, 4, 5

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<tr>
<td><strong>Sub-skill F.a: Patterns, relations, and functions</strong></td>
</tr>
<tr>
<td>1) Use two concurrent numeric patterns to describe and analyze functional relationships between variables in two concurrent numeric patterns using addition and subtraction.</td>
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<tr>
<td>2) Extend a given arithmetic sequence of pictures or numbers.</td>
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<tr>
<td>3) Describe and interpret linear patterns in tables and graphs.</td>
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<tr>
<td>4) Identify the rule to complete or extend a function table or any combination of the two using one operation (+, -, x, ÷) and numbers (0 through 100) in the function table.</td>
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<tr>
<td>5) Describe real-world phenomena represented by a graph. Describe real-world phenomena that a given graph might represent.</td>
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**Sub-skill F.b: Expressions, equations, and inequalities**

6) Demonstrate understanding of equality and inequality and solve single-variable equations using symbols (<, >, =). |

7) Solve single-variable one-step equations and algebraic expressions with one variable and one operation and whole number coefficients with and without context. |

8) Describe in words the generalization for a given one-operation pattern. |

9) Solve two-step multi-operation equations with letter-variables and whole number coefficients with and without context. Ex: 3x + 1 = 7 |

10) Represent problem situations with one or two-step equations or expressions. |

11) Evaluate formulas with and without context by solving for a specified variable. |

**Sub-skill F.c: Properties**

12) Identify a pair of equivalent numerical expressions where the commutative property of either addition or multiplication has been used. |

13) Demonstrate understanding of up to three-step order of operations expression with and without context using parentheses and exponents. |

14) Demonstrate understanding of distributive property.