Mansfield Public Schools
Mathematics Curriculum

The Common Core State Standards in Mathematics (CCSSM) are a set of academic standards in mathematics that are grounded in evidence and designed to ensure that all students have the academic knowledge and skills they need in these core subjects to succeed after high school. The CCSS were developed in a state-led process under the leadership of governors and chief state school officers with participation from 48 states. The process included the involvement of state departments of education, districts, teachers, community leaders, experts in a wide array of fields, and professional educator organizations. These standards were adopted by the state of Connecticut in July, 2010.

Focus, coherence, and rigor are the major evidence-based design principles of the Common Core State Standards for Mathematics. These principles are meant to fuel greater achievement in a deep and rigorous curriculum, one in which students acquire conceptual understanding, procedural skill and fluency, and the ability to apply mathematics to solve problems. Thus, the instructional shifts in mathematics are as follows:

- **Focus:** fewer standards allow for focusing on the major work for each grade
- **Coherence:** the standards are designed around coherent progressions and conceptual connections
- **Rigor:** in major topics, pursue with equal intensity conceptual understanding, procedural skill and fluency, and applications of the mathematics in real-world scenarios

The Common Core State Standards for Mathematics have two key components:

- **Standards for Mathematical Practice** – these practices describe expertise and habits of mind that all math students should exhibit.
- **Standards for Mathematical Content** – conceptual understandings, procedural skills and fluencies, and applications in mathematics

The Content Standards at each grade level are grouped into domains (e.g. Geometry) and clusters within each domain.
Standards for Mathematical Practice

The eight mathematical practices are:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.
Grade 2

In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

1. Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

2. Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.

3. Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.

4. Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.

Key Fluencies
- Add/subtract within 20, knowing from memory all sums of two one-digit numbers
- Add and subtract within 100, using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction

Operations and Algebraic Thinking
- Represent and solve problems involving addition and subtraction
Use addition and subtraction within 100 to solve on and two-step problems involving adding to, taking from, putting together, taking apart and comparing.

- Solve for the unknown in all positions (e.g., by using drawing and equations with a symbol for the unknown number to represent the problem)

- Add and subtract within 20
- Work with equal groups of objects to gain foundations for multiplication
  - Determine whether a group of objects (up to 20) has an odd or even number of members; write an equation to express an even number as a sum of two equal addends
  - Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and 5 columns; write an equation to express the total as a sum of equal addends

**Number and Operations in Base Ten**
- Understand place value
  - Understand three-digit numbers as representing amounts of hundreds, tens, and ones.
  - Count, read, and write numbers within 1000
  - Skip count by 5s, 10s, 100s
  - Compare three-digit numbers and use >, <, = symbols to record comparisons
- Use place value understanding and properties of operations to add and subtract
  - Fluently add and subtract within 100 based on place value, properties of operations, and/or the relationship between addition and subtraction
  - Add up to four two-digit numbers using strategies based on place value and properties of operations
  - Mentally add or subtract 10 or 100 to or from a given number 100-900
  - Explain why addition and subtraction strategies work, using place value and the properties of operations

**Measurement and Data**
- Measure and estimate lengths in standard units
  - Measure length of an object by selecting and using appropriate tools (e.g., ruler) and estimate lengths using standard units (inches, feet, centimeters, meters)
  - Measure to determine how much longer one unit is than another
- Relate addition and subtraction to length
  - Solve word problems involving lengths that are given in the same units and represent whole number lengths on a number line diagram
- Work with time and money
Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies using $ and ¢ symbols appropriately

Represent and interpret data

Generate measurement data by measuring length of several objects to the nearest whole or repeated measurements of the same object and show measurements in a line plot

Draw a picture graph and bar graph to represent and solve problems with a data set with up to four categories

Geometry

Reason with shapes and their attributes

Recognize and draw shapes having specific attributes

Partition shapes into the same size parts/equal shares and describe the shares (e.g., halves) and the whole as two halves, three thirds, four fourths using words

Recognize that equal shares of identical wholes need not have the same shape