School District of Marshfield Mathematics Standards –

2nd Grade

MATHEMATICS – Counting and Cardinality, Operations and Algebraic Thinking, Number and Operations in Base Ten, Measurement and Data, and Geometry

Wisconsin Academic Standards *Specific knowledge and skills that students will know and be able to do by the end of 2nd Grade*	***Marshfield Student Learning Target ("I can …")*** *These learning targets could be taught in the context of whole group, mini lessons, small groups and conferences.*
Operations and Algebraic Thinking	
Represent and Solve Problems Involving Addition and Subtraction • Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.[1] **2.OA.1**	***Represent and Solve Problems Involving Addition and Subtraction*** • I can use strategies to solve addition word problems (within 100). • I can use strategies to solve subtraction word problems (within 100).
Add and Subtract within 20 • Fluently add and subtract within 20 using mental strategies.[2] By end of Grade 2, know from memory all sums of two one-digit numbers. **2.OA.2**	***Add and Subtract within 20*** • I know my addition facts. • I know my subtraction facts.
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, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends. **2.OA.3** • Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends. **2.OA.4**	***Work with Equal Groups of Objects to Gain Foundations for Multiplication*** • I can group objects to tell if a number is odd or even. • I can write a number sentence to show how adding two of the same number will equal an even number. • I can use addition to help me figure out how many objects are in an array. • I can write a number sentence to show the total number of objects are in an array.

[1] See Table 1

[2] Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

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Number and Operations in Base Ten	
Understand Place Value • Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: **2.NBT.1** a. 100 can be thought of as a bundle of ten tens — called a "hundred." **2.NBT.1A** b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). **2.NBT.1B** • Count within 1000; skip-count by 5s, 10s, and 100s. **2.NBT.2** • Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. **2.NBT.3** • Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. **2.NBT.4**	***Understand Place Value*** • I can understand and use hundreds, tens and ones. • I can show that I understand that a bundle of ten "tens" is called a "hundred". • I can show that I understand the numbers I use when I count by hundreds, have a certain number of hundreds, 0 tens and 0 ones. • I can count to 1,000 by 1s, 5s, 10s and 100s. • I can read and write numbers to 1,000 in different ways. • I can compare three-digit numbers using <, =, and > because I understand hundreds, tens and ones.
Use Place Value Understanding and Properties of Operations to Add and Subtract • Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. **2.NBT.5** • Add up to four two-digit numbers using strategies based on place value and properties of operations. **2.NBT.6** • Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds. **2.NBT.7** • Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. **2.NBT.8** • Explain why addition and subtraction strategies work, using place value and the properties of operations.[3] **2.NBT.9**	***Use Place Value Understanding and Properties of Operations to Add and Subtract*** • I can add two-digit numbers. • I can subtract two-digit numbers. • I can add up to four two-digit numbers. • I can use strategies to add numbers within 1000 and know when to compose and decompose. • I can use strategies to subtract numbers within 1000 and know when to borrow. • I can add and subtract 10 or 100 to any number from 100 to 900 using mental math. • I can explain why adding and subtracting strategies work using what I know about place value.

[3] Explanations may be supported by drawings or objects.

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Measurement and Data	
Measure and Estimate Lengths in Standard Units • Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. **2.MD.1** • Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. **2.MD.2** • Estimate lengths using units of inches, feet, centimeters, and meters. **2.MD.3** • Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. **2.MD.4**	***Measure and Estimate Lengths in Standard Units*** • I can use different tools to measure objects. • I can use two different units to measure the same object and tell how the measurements compare. • I can estimate the lengths of objects using inches, feet, centimeters and meters. • I can tell the difference in the lengths of two different objects.
Relate Addition and Subtraction to Length • Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. **2.MD.5** • Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram. **2.MD.6**	***Relate Addition and Subtraction to Length*** • I can use addition and subtraction to solve measurement problems. • I can make and use a number line.
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. **2.MD.7** • Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?* **2.MD.8**	***Work with Time and Money*** • I can tell time to five minutes. • I can use a.m. and p.m. in the right ways.
Represent and Interpret Data • Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. **2.MD.9** • Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems[4] using information presented in a bar graph. **2.MD.10**	***Represent and Interpret Data*** • I can make a table to organize information about measurement. • I can show measurements with a line plot. • I can draw a picture graph to share number information. • I can draw a bar graph to share number information. • I can solve problems using information from a bar graph.

[4] See Table 1

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Geometry	
Reason with Shapes and their Attributes • Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.[5] Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. **2.G.1** • Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. **2.G.2** • Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape. **2.G.3**	***Reason with Shapes and their Attributes*** • I can name and draw shapes (triangles, quadrilaterals, pentagons, hexagons and cubes). • I can find the area of a rectangle by breaking it into equal sized squares. • I can divide shapes into equal parts and describe the parts with words like halves or thirds. • I can understand that equal parts of a shape may look different depending on how I divide the shape.

[5] Sizes are compared directly or visually, not compared by measuring.

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TABLE 1. Common Addition and Subtraction Situations[6]

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? 2 + 3 = ?	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? 2 + ? = 5	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? ? + 3 = 5
Take From	Five apples were on the table. I ate two apples. How many apples are on the table now? 5 – 2 = ?	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? 5 – ? = 3	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? ? – 2 = 3
	Total Unknown	**Addend Unknown**	**Both Addends Unknown[1]**
Put Together/ Take Apart[2]	Three red apples and two green apples are on the table. How many apples are on the table? 3 + 2 = ?	Five apples are on the table. Three are red and the rest are green. How many apples are green? 3 + ? = 5, 5 – 3 = ?	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? 5 = 0 + 5, 5 = 5 + 0 5 = 1 + 4, 5 = 4 + 1 5 = 2 + 3, 5 = 3 + 2
	Difference Unknown	**Bigger Unknown**	**Smaller Unknown**
Compare[3]	(“How many more?” version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? (“How many fewer?” version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? 2 + ? = 5, 5 – 2 = ?	(Version with “more”): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? 2 + 3 = ?, 3 + 2 = ?	(Version with “more”): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have? (Version with “fewer”): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? 5 – 3 = ?, ? + 3 = 5

[1]These take apart situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean makes or results in but always does mean is the same number as.

[2]Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation, especially for small numbers less than or equal to 10.

[3]For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using more for the bigger unknown and using less for the smaller unknown). The other versions are more difficult.

[6] Adapted from Box 2-4 of Mathematics Learning in Early Childhood, National Research Council (2009, pp.32,33).