
CCSS Math Unit Learning Progressions and Pacing Guide

Calumet School District 155
Wilson Elementary School

Grade 2

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Math – Grade 2 Pacing Guide

Unit 1 Learning Progressions – Trimester 1

Topic: Operations & Algebraic Thinking – Add/Subtract within 20 with fluency (by the end of Grade 2)

Which standards are in Unit 1 Learning Progression?

2.OA.1, 2.OA.2, 2.OA.3

Connections to other Domains and/or Clusters:

2.MD.5, 2.M.D.6, 2.MD.8, 2.MD.10

By the end of this learning progression, students will be able to . . .

UNDERSTAND:	
There are multiple ways to represent and find sums/differences within 100 (story problems, pictures, equations, computational strategies, manipulatives, and arrays).	
KNOW:	DO:
<p>Addition and subtraction are related operations.</p> <p>Subtraction can be perceived as an unknown addend problem.</p> <p>Addition and subtraction problems can be posed with the missing part being in different positions.</p> <p>Word problems may require one or two computations to find a solution.</p> <p>Mental strategies for adding single digit numbers to know combinations to 20 fluently (Doubles +1, Make a Ten, Ten plus..., 9 +...).</p> <p>The objects in an even number set can be paired or broken into two equal groups, and an odd number set of objects cannot.</p> <p>Methods for recording addition and subtraction strategies using number lines and equations.</p> <p>Symbols can represent an unknown quantity in an equation.</p>	<p>Represent and solve problems involving addition and subtraction.</p> <p>1. 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. CC.2.OA.1</p> <p>Add and subtract within 20.</p> <p>2. Fluently add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers. CC.2.OA.2</p> <p>Work with equal groups of objects to gain foundations for multiplication.</p> <p>3. 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. CC.2.OA.3</p> <p>Relate addition and subtraction to length.</p> <p>4. 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. CC.2.MD.5</p> <p>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. CC.2.MD.6</p> <p>Work with time and money.</p> <p>8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and cent symbols appropriately. <i>Example, if you have 2 dimes and 3 pennies, how many cents do you have?</i> CC.2.MD.8</p>

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	<p>Represent and interpret data.</p> <p>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 using information presented in a bar graph.</p> <p>CC.2.MD.10</p>	
<p>The terms students should learn to use with increasing precision in this unit are: equation, sum, total, difference, odd, even</p>		
<p>Standards of Mathematical Practice:</p>		
<p>1. Make sense of problems & persevere in solving them. 2. Reason abstractly & quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics.</p>		<p>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.</p>
<p>Math Calendar/Focus Wall</p>		<p>Math Tools</p>
<p>Hundreds Chart Mental Math Strategy Posters Number Lines Double Ten Frame Yard Stick Odd Pig/Even Cow Posters Calendar Number of the Day Piggy Bank Pattern/Plastic Coins Problem of the Day Bar Graph Template Dry Erase Board for Modeling Representations Fact Family Houses Dominoes Doubles Make a Ten/Number Bonds Standards of Mathematical Practice Posters Clock</p>		<p>Hundreds Chart Number Lines Even and Odd Numbers Ten Frame Bingo Chips Dice Clock</p>

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Unit 2 Learning Progressions – Trimester 1

Course: Grade 2 – Math

Topic: Number Operations and Base Ten – Understanding Place Value

Which standards are in Unit 2 Learning Progression?

2.NBT.1, 2.NBT.1a, 2.NBT.1b, 2.NBT.2, 2.NBT.3, 2.NBT.4
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Connections to other Domains and/or Clusters:

2.NBT.7, 2.NBT.8, 2.MD.8

By the end of this learning progression, students will be able to . . .

UNDERSTAND:	
Three-digit numbers are composed of hundreds, tens, and ones.	
KNOW:	DO:
<p>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:</p> <p>CC.2.NBT.1</p> <p>a. 100 can be thought of as a bundle of ten tens – called a “hundred.” CC.2.NBT.1a</p> <p>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). CC.2.NBT.1b</p> <p>The repeating patterns of the counting sequence up to 1000.</p> <p>The meaning of recording symbols $>$, $=$, $<$.</p>	<p>Understand place value.</p> <ol style="list-style-type: none"> 1. Count within 1000; skip-count by 5s, 10s, and 100s. CC.2.NBT.2 2. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. CC.2.NBT.3 3. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, $<$ symbols to record the results of comparisons. CC.2.NBT.4 <p>Use place value understanding and properties of operations to add and subtract.</p> <ol style="list-style-type: none"> 4. 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. CC.2.NBT.7 5. Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900. CC.2.NBT.8 6. Explain why addition and subtraction strategies work, using place value and the properties of operations. CC.2.NBT.9 <p>Work with time and money.</p> <ol style="list-style-type: none"> 7. Solve word problems involving dollar bills, quarters, dimes, nickes, and pennies, using \$ and cent symbols appropriately. <i>Example: If you have 2 dimes and 3 pennies, how many cents do you have?</i> CC.2.MD.3
The terms students should learn to use with increasing precision in this unit are: digits, ones, tens, hundreds, place	

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value, break apart, put together	
Standards of Mathematical Practice:	
<ol style="list-style-type: none"> 1. Make sense of problems & persevere in solving them. 2. Reason abstractly & quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 	<ol style="list-style-type: none"> 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.
Math Calendar/Focus Wall	Math Tools
Place Value Mats to Hundreds Greater than/Less than alligator mouths Skip-counting Posters	Place Value Mats to Hundreds Greater than/Less than tool

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Unit 3 Learning Progressions – Trimester 2

Course: Grade 2 – Math

Topic: Number Operations and Base Ten – Adding and Subtracting Within 1000 including Place Value

Which standards are in Unit 3 Learning Progression?

2.NBT.5, 2.NBT.6, 2.NBT.7, 2.NBT.8, 2.NBT.9

Connections to other Domains and/or Clusters:

2.MD.5, 2.MD.6, 2.MD.8

By the end of this learning progression, students will be able to . . .

UNDERSTAND:	
Numbers can be composed & decomposed into place value parts to add and subtract multi-digit numbers efficiently.	
KNOW:	DO:
<p>The strategy of mentally adding and subtracting 10 or a 100 to a given number.</p> <p>Addition and subtraction are related operations.</p> <p>Commutative & associative properties of operations can be used to solve problems: For example students know that if $120 + 140 = 260$, the $140 + 120 = 260$ without actually naming the commutative property. Students know if $2 + 3 + 4 = 9$ then they will know that $4 + 3 + 2 = 9$ without actually naming the associative property.</p> <p>Place value strategies for adding and subtracting (counting on, making 10s/100s, breaking apart and putting together, using known facts).</p> <p>Models for adding & subtracting (number line, base ten materials).</p> <p>Methods for recording addition & subtraction strategies using number lines and equations.</p>	<p>Use place value understanding and properties of operations to add and subtract.</p> <ol style="list-style-type: none"> 1. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. CC.2.NBT.5 2. Add up to four two-digit numbers using strategies based on place value and properties of operations. CC.2.NBT.6 3. 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. CC.2.NBT.7 4. Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900. CC.2.NBT.8 5. Explain why addition and subtraction strategies work, using place value and the properties of operations. CC.2.NBT.9 <p>Relate addition to subtraction to length.</p> <ol style="list-style-type: none"> 6. 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. CC.2.MD.5 7. 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

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Symbols can represent an unknown quantity in an equation.	diagram. CC.2.MD.6 Work with time and money. 8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and cent symbols appropriately. <i>Example, if you have 2 dimes and 3 pennies, how many cents do you have?</i> CC.2.MD.8
The terms students should learn to use with increasing precision in this unit are: mental math, digit, sum, difference, ones, tens, hundreds, thousands, strategy, model	
Standards of Mathematical Practice:	
1. Make sense of problems & persevere in solving them. 2. Reason abstractly & 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.
Math Calendar/Focus Wall	Math Tools
Place Value Mats to Thousands	Place Value Mat to Thousands

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Unit 4 Learning Progression – Trimester 2

Course: Grade 2 – Math

Topic: Measurement (Length, Time, Money)

Which standards are in Unit 4 Learning Progression?

2.MD.1, 2.MD.2, 2.MD.3, 2.MD.4, 2.MD.5, 2.MD.6, 2.MD.7, 2.MD.8
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Connections to other Domains and/or Clusters:

2.MD.9

By the end of this learning progression, students will be able to . . .

UNDERSTAND:	
Tools that measure length, time, & money must have equal intervals between units. (clocks, number lines, coins.)	
KNOW:	DO:
<p>The appropriate tool and unit of measure should be selected based on the context of the situation.</p> <p>Estimating strategies can be applied to measuring lengths to the closest standard unit of measure.</p> <p>Lengths of an object can be compared by using various units of measure.</p> <p>The value of the measurement of an object will be different depending on the size of the units used to measure it.</p> <p>When you compare two lengths, you are finding the difference.</p> <p>Strategies used for solving & representing addition/subtraction problems can be utilized to solve and represent measurement word problems. (Word problems involving length, money & time)</p> <p>Methods for recording addition & subtraction strategies using number lines & equations.</p> <p>Symbols can represent an unknown quantity in an equation.</p>	<p>Measure and estimate lengths in standard units.</p> <ol style="list-style-type: none"> 1. Measure the length of an object by selecting and using appropriate tools as rulers, yardsticks, meter sticks and measuring tapes. CC.2.MD.1 2. 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. CC.2.MD.2 3. Estimate lengths using units of inches, feet, centimeters, and meters. CC.2.MD.3 4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. CC.2.MD.4 <p>Relate addition to subtraction to length.</p> <ol style="list-style-type: none"> 5. 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. CC.2.MD.5 6. 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. CC.2.MD.6 <p>Work with time and money.</p> <ol style="list-style-type: none"> 7. Tell and write time from analog and digital clocks to the nearest five minute, using a.m. and p.m. CC.2.MD.7 8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using \$ and cent symbols appropriately. <i>Example, if you have 2 dimes and 3 pennies, how many cents do you have?</i> CC.2.MD.8

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	<p>Represent and interpret data.</p> <p>9. 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. CC.2.MD.9</p>	
<p>The terms students should learn to use with increasing precision in this unit are: measure, estimate, length, standard units.</p>		
<p>Standards of Mathematical Practice:</p>		
<p>1. Make sense of problems & persevere in solving them.</p> <p>2. Reason abstractly & quantitatively.</p> <p>3. Construct viable arguments and critique the reasoning of others.</p> <p>4. Model with mathematics.</p>	<p>5. Use appropriate tools strategically.</p> <p>6. Attend to precision.</p> <p>7. Look for and make use of structure.</p> <p>8. Look for and express regularity in repeated reasoning.</p>	
<p>Math Calendar/Focus Wall</p>	<p>Math Tools</p>	
<p>Analog and digital clocks</p>		

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Unit 5 Learning Progression – Trimester 3

Course: Grade 2 – Math

Topic: Geometry – Reason with Shapes & Their Attributes

Which standards are in Unit 5 Learning Progression?

2.G.1, 2.G.2, 2.G.3

Connections to other Domains and/or Clusters:

2.OA.4

By the end of this learning progression, students will be able to . . .

UNDERSTAND:	
Shapes have defining attributes that can be utilized for comparing and composing/constructing. Rectangular arrays promote the connection between geometry and the foundations of multiplication. Decomposing shapes into equal size pieces promotes the connection between geometry and fractional concepts.	
KNOW:	DO:
<p>Angles and sides are important specified attributes of 2D shapes. (2.G.1)</p> <p>Faces, edges & vertices are important specified attributes of 3D shapes.</p> <p>Distinguishing features of 2D and 3D shapes.</p> <p>Equal shares of identical wholes do not need to have the same shape (e.g., $\frac{1}{4}$ of a square can look different for different equal squares).</p> <p>Rectangular arrays can represent the relationship between repeated addition and the foundations of multiplication.</p>	<p>Reason with shapes and their attributes.</p> <ol style="list-style-type: none"> 1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. CC.2.G.1 <ol style="list-style-type: none"> a. Identify regular shapes. b. Compose shapes given the specified attributes. c. Distinguish between 2D & 3D shapes. 2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. CC.2.G.2 3. Partition circles and rectangles into two, three or four equal shares, describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape. CC.2.G.3 <p>Work with equal groups of objects to gain foundations for multiplication.</p> <ol style="list-style-type: none"> 4. 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. CC.2.OA.4
<p>The terms students should learn to use with increasing precision in this unit are: angles, sides, faces, edges, polygon, regular, triangles, quadrilaterals, pentagons, hexagons, and cubes, array, columns, rows, halves, thirds, fourths.</p>	
Standards of Mathematical Practice:	
<ol style="list-style-type: none"> 1. Make sense of problems & persevere in solving them. 2. Reason abstractly & quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 	<ol style="list-style-type: none"> 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.

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Unit 6 Learning Progressions – Trimester 3

Course: Grade 2 – Math

Topic: Data – Represent & Interpret

Which standards are in Unit 6 Learning Progression?

2.MD.9, 2.MD.10

Connections to other Domains and/or Clusters:

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By the end of this learning progression, students will be able to . . .

UNDERSTAND:	
Data can be organized, represented, and interpreted in multiple ways for a variety of purposes.	
KNOW:	DO:
<p>Data can be organized and represented in multiple ways.</p> <p>Data presented in graphs can be interpreted and manipulated to solve problems.</p>	<ol style="list-style-type: none"> 1. 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. CC.2.MD.9 2. 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-aprt, and compare problems using information presented in a bar graph. CC.2.MD.10
The terms students should learn to use with increasing precision in this unit are: measure, line plot, scale, bar graph, picture graph	
Standards of Mathematical Practice:	
<ol style="list-style-type: none"> 1. Make sense of problems & persevere in solving them. 2. Reason abstractly & quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 	<ol style="list-style-type: none"> 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.
Math Calendar/Focus Wall	Math Tools
Line plot graphs	Line plots