

## Grade 1 Overview

### Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

### Number and Operations in Base Ten

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

### Measurement and Data

- Measure lengths indirectly and by iterating length units.
- Tell and write time.
- Represent and interpret data.

### Geometry

- Reason with shapes and their attributes.

### Mathematical Practices

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.

**Ohio County Public Schools**  
**Common Core State Standards: Mathematics**  
**Grade 1 Math Pacing Guide**

**1<sup>st</sup> Nine Weeks**

Domain	Common Core State Standards	Major Topics/Concepts	Vocabulary	Resources
<b>Number and Operations in Base Ten</b> <ul style="list-style-type: none"> <li>• Numbers to 50</li> <li>• Oral Counting</li> <li>• Calendar activities</li> <li>• 100's board (to 120)</li> </ul>	<b>1.NBT.1 (to 50)</b> <b>1.NBT.2a</b> <b>1.NBT.2b</b> <b>1.NBT.2c</b> <b>1.NBT.5</b>	<b>Extend the counting sequence.</b> <ul style="list-style-type: none"> <li>• <b>1.NBT.1</b> - Extend the counting sequence to 50</li> </ul> <b>Understand place value.</b> <ul style="list-style-type: none"> <li>• <b>1.NBT.2</b> - Use calendar to introduce concepts of tens and ones through the use of how many school days</li> <li>• <b>1.NBT.2a</b> - Introduce base ten vocabulary early – (think of ten as a bundle of ten ones-called a “ten”)</li> <li>• Place Value will be taught in full by the 2<sup>nd</sup> quarter (focus on building number sense with <i>language and thinking</i>)</li> <li>• <b>1. NBT.2b</b> – Represent numbers from 11 to 19 as a “ten” and one, two, three, four, five, six, seven, eight, or nine “ones”.</li> <li>• <b>1.NBT.2c</b> - Skip counting by 2’s, 5’s and 10’s</li> <li>• Introduce 100’s board to teach number sense</li> </ul> <b>Use place value understanding and properties of operations to add and subtract.</b> <ul style="list-style-type: none"> <li>• <b>1.NBT.5</b> - Introduce one more, one less, ten more and ten less (explain reasoning)</li> </ul>		
<b>Operations and Algebraic Thinking</b> <ul style="list-style-type: none"> <li>• Problem solving to 10</li> <li>• Count on/back</li> </ul>	<b>1.OA.2</b> <b>1.OA.5</b>	<b>Represent and solve problems involving addition and subtraction.</b> <ul style="list-style-type: none"> <li>• <b>1.OA.2</b> – Represent and solve word problems using addition of whole numbers whose sum is less than or equal to 20 – be able to show work using objects, drawings and equations</li> </ul> <b>Add and subtract within 20.</b> <ul style="list-style-type: none"> <li>• <b>1.OA.5</b> – Relate counting to addition and subtraction by <i>counting on/back</i></li> </ul>		
<b>Measurement and Data</b> <ul style="list-style-type: none"> <li>• Interpreting Data</li> </ul>	<b>1.MD.4</b>	<b>Represent and interpret data.</b> <ul style="list-style-type: none"> <li>• <b>1.MD.4</b> – Collect, organize, represent, analyze and interpret data using picture graphs, bar graphs, tally tables, and line plots</li> </ul>		
<b>Geometry</b> <ul style="list-style-type: none"> <li>• Shapes and their attributes</li> </ul>	<b>1.G.1</b>	<b>Reason with shapes and their attributes.</b> <ul style="list-style-type: none"> <li>• <b>1. G.1</b> – Plane Shapes - Distinguish between defining attributes (open and closed; symmetry; number of sides, vertices, faces) <i>versus</i> non-defining attributes (color, orientation, overall size).</li> </ul>		

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**2<sup>nd</sup> Nine Weeks**

Domain	Common Core State Standards	Major Topics/Concepts	Vocabulary	Resources
<p><b>Number &amp; Operations in Base Ten</b></p> <ul style="list-style-type: none"> <li>• Oral Counting to 100</li> <li>• Place Value</li> <li>• Compare and Order Numbers</li> <li>• Mental Math</li> </ul>	<p>1.NBT.1 (to 100)            1.NBT.2            1.NBT.3            1.NBT.5</p>	<p><b>Extend the counting sequence.</b></p> <ul style="list-style-type: none"> <li>• 1.NBT.1 - Extend the counting sequence to 100</li> </ul> <p><b>Understand place value.</b></p> <ul style="list-style-type: none"> <li>• 1. NBT.2 - Understand Place Value of two-digit numbers – “tens” and “ones”.</li> <li>• 1. NBT.3 - Use symbols (&lt;,&gt;=) to compare and order two-digit numbers based on meanings of the tens and ones digits.</li> </ul> <p><b>Use place value understanding and properties of operations to add and subtract.</b></p> <ul style="list-style-type: none"> <li>• 1.NBT.5 – Given a two-digit number, mentally find one more, one less, ten more and ten less (explain reasoning)</li> </ul>		
<p><b>Operations and Algebraic Thinking</b></p> <ul style="list-style-type: none"> <li>• Word Problems: Addition &amp; Subtraction within 20</li> <li>• Unknown Addends</li> <li>• Addition and Subtraction Fluency</li> <li>• Equations</li> </ul>	<p>1.OA.1            1.OA.4            1.OA.6            1.OA.7            1.OA.8</p>	<p><b>Represent and solve problems involving addition and subtraction.</b></p> <ul style="list-style-type: none"> <li>• 1. OA.1 – Represent and solve word problems using addition and subtraction within 20 – be able to show work using objects, drawings and equations. This includes but is not limited to the use of symbols to represent a missing number include situations of: <i>adding to; taking from; putting together; taking apart; comparing; unknowns in all positions.</i></li> </ul> <p><b>Understand and apply properties of operations and the relationship between addition and subtraction.</b></p> <ul style="list-style-type: none"> <li>• 1. OA.4 – Understand subtraction as an unknown-addend problem. For example, subtract 10 - by finding the number that makes 10 when added to 8 ----- ( <u> </u> + 8 = 10)</li> </ul> <p><b>Add and subtract within 20.</b></p> <ul style="list-style-type: none"> <li>• 1. OA.6 -- Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.</li> </ul> <p>Check standard for examples. Meeting the requirements of this standard requires multiple strategies including <i>counting on; making ten; decomposing a number leading to a ten; using the relationship between</i></p>		

		<p><i>addition and subtraction; and creating equivalent but easier or known sums.</i></p> <p><b>Work with addition and subtraction equations.</b></p> <ul style="list-style-type: none"> <li>• <b>1. OA.7</b> – Focus on the = sign and its meaning. Work with addition and subtraction equations to find a balance on each side of the = sign.</li> <li>• <b>1. OA.8</b> – Work with addition and subtraction equations. Find the unknown or missing whole number that will make the equation true.</li> </ul>		
<p><b>Measurement and Data</b></p> <ul style="list-style-type: none"> <li>• Tell and Write Time</li> </ul>	<b>1.MD.3</b>	<p><b>Tell and write time.</b></p> <ul style="list-style-type: none"> <li>• <b>1. MD.3</b> – Tell and write time in <i>hours</i> and <i>half-hours</i> using analog and digital clocks. (Note:<b>1.G.3</b> requires partition of circles into 2 &amp; 4 equal shares, using halves, fourths and quarters to describe the shares)</li> </ul>		
<p><b>Geometry</b></p> <ul style="list-style-type: none"> <li>• Shapes (2D, 3D)</li> </ul>	<b>1.G.2</b>	<p><b>Reason with shapes and their attributes.</b></p> <ul style="list-style-type: none"> <li>• <b>1. G.2</b> – Compose (build) 2-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles).</li> <li>• <b>1. G.2</b> – Compose (build) 3-dimensional objects (cubes, right rectangular prisms, right circular cones, and right circular cylinders to create a composite shape).</li> <li>• <b>1. G.2</b> - Compose new shapes from the composite shapes created.</li> </ul>		

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**3<sup>rd</sup> Nine Weeks**

Domain	<i>Common Core State Standards</i>	Major Topics/Concepts	Vocabulary	Resources
<p><b>Number &amp; Operations in Base Ten</b></p> <ul style="list-style-type: none"> <li>• Oral Counting to 120</li> <li>• Place Value</li> <li>• Mental Math</li> </ul>	<p>1.NBT.1 (to 120)            1.NBT.2            1.NBT.5</p>	<p><b>Extend the counting sequence.</b></p> <ul style="list-style-type: none"> <li>• <b>1.NBT.1</b> - Extend the counting sequence to 120</li> </ul> <p><b>Understand place value.</b></p> <ul style="list-style-type: none"> <li>• <b>1.NBT.2</b> - Understand Place Value of two-digits numbers. – “tens” and “ones”.</li> </ul> <p><b>Use place value understanding and properties of operations to add and subtract.</b></p> <ul style="list-style-type: none"> <li>• <b>1.NBT.5</b>- Given a two-digit number, mentally find one more, one less, ten more and ten less (explain reasoning).</li> </ul>		
<p><b>Operations and Algebraic Thinking</b></p> <ul style="list-style-type: none"> <li>• Word Problems: Addition and Subtraction within 20.</li> <li>• Commutative &amp; Associative Property</li> </ul>	<p>1. OA.1  <i>Continue to teach – refer to previous alignment notes in this pacing guide.</i></p> <p>1.OA.3            1.OA.7            1.OA.8</p>	<p><b>Represent and solve problems involving addition and subtraction.</b></p> <ul style="list-style-type: none"> <li>• <b>1. OA.1</b> – Use addition and subtraction within 20 to solve word problems, be able to show work using objects, drawings and equations. This includes but is not limited to the use of symbols to represent a missing number; include situations of: <i>adding to; taking from; putting together; taking apart; comparing; unknowns in all positions.</i></li> </ul> <p><b>Understand and apply properties of operations and the relationship between addition and subtraction.</b></p> <ul style="list-style-type: none"> <li>• <b>1. OA.3</b> – Commutative and Associative properties of addition and subtraction. Check standard for examples.</li> </ul> <p><i>Note: Students need not use formal terms for these properties.</i></p> <p><b>Work with addition and subtraction equations.</b></p> <ul style="list-style-type: none"> <li>• <b>1. OA.7</b> – Focus on the = sign and its meaning. Work with addition and subtraction equations to find a balance on each side of the = sign.</li> <li>• <b>1. OA.8</b> – Work with addition and subtraction equations. Find the unknown or missing whole number that will make the equation true.</li> </ul>		

# Ohio County Public Schools

## Common Core State Standards: Mathematics

## Grade 1 Math Pacing Guide

**4<sup>th</sup> Nine Weeks**

Domain	<i>Common Core State Standards</i>	Major Topics/Concepts	Vocabulary	Resources
<b>Number &amp; Operations in Base Ten</b> <ul style="list-style-type: none"> <li>• Number Sense Mastery to 120</li> <li>• 2 Digit Addition &amp; Subtraction</li> </ul>	<b>1.NBT.1</b> <b>1.NBT.4</b> <b>1.NBT.5</b> <b>1.NBT.6</b>	<b>Extend the counting sequence.</b> <ul style="list-style-type: none"> <li>• <b>1.NBT.1</b> -- Mastery of numbers to <i>120</i></li> </ul> <b>Use place value understanding and properties of operations to add and subtract.</b> <ul style="list-style-type: none"> <li>• <b>1.NBT.4</b> – two-digit addition within 100 – using concrete models, 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 and explain the reasoning used. Remember <b>1.NBT.1</b> -- Mastery of numbers to <i>120</i>.</li> <li>• <b>1.NBT.5</b> -- Given a two-digit number, mentally find one more, one less, ten more, ten less (explain reasoning).</li> <li>• <b>1.NBT.6</b> – two-digit subtraction of multiples of 10 in the range 10-90 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 and explain the reasoning used.</li> </ul>		
<b>Operations and Algebraic Thinking</b> <ul style="list-style-type: none"> <li>• Addition and Subtraction</li> </ul>	<b>1.OA (all)</b>  <i>Continue to Teach/Review</i>	<b>1.OA Domain (0 to 120) <i>Continue to Teach/Review</i></b> <b>Represent/solve problems involving addition &amp; subtraction.</b> <u><b>1.OA.1&amp;2</b></u> <b>Understand and apply properties of operations and the relationship between addition and subtraction.</b>  <u><b>1.OA.3&amp;4</b></u> <b>Add and subtract within 20.</b> <u><b>1.OA.5&amp;6</b></u> <b>Work with addition and subtraction equations.</b> <u><b>1.OA.7&amp;8</b></u>		
<b>Measurement and Data</b> <ul style="list-style-type: none"> <li>• Non-Standard Units of Measurement</li> </ul>	<b>1.MD.1</b> <b>1.MD.2</b>	<b>Measure lengths indirectly and by iterating length units.</b> <ul style="list-style-type: none"> <li>• <b>1. MD.1</b> – Order 3 objects by lengths; compare the lengths of two objects indirectly by using a third object.</li> <li>• <b>1.MD.2</b> – Measure the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end -- (<i>iteration</i>)   <i>Note: Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.</i></li> </ul>		

<b>Geometry</b> <ul style="list-style-type: none"><li>Equal shares</li></ul>	<b>1.G.3</b>	<b>Reason with shapes and their attributes.</b> <ul style="list-style-type: none"><li><b>1. G.3</b> – Two and four equal shares – Partition circles and rectangles into halves and fourths/quarters. Understand for these examples that <i>decomposing into more equal shares</i> creates <i>smaller shares</i>.</li></ul>		
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# First Grade – Common Core State Standards -- MATH

## Critical Areas

- 1. Developing understanding of addition, subtraction, and strategies for addition and subtraction within 20** – Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g., cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g., *adding two is the same as counting on two*). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g., “making tens”) to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.
- 2. Developing understanding of whole number relationship and place value, including grouping in tens and ones** – Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and to subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and to solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitudes.
- 3. Developing understanding of linear measurement and measuring lengths as iterating length units** – Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (*the mental activity of building up the length of an object with equal-sized units*) and the transitivity principle for indirect measurement. (Note: Students should apply the principle of transitivity of measurement to make direct comparisons, but they need not use this technical term.)
- 4. Reasoning about attributes of, and composing and decomposing geometric shapes**– Students compose and decompose plane or solid figures (e.g., *put two triangles together to make a quadrilateral*) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

## Mathematical Practices

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.

## Operations and Algebraic Thinking

1.OA

Represent and solve problems involving addition and subtraction.

- 1.OA.1** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (Note: See CCSS Glossary & Table 1.)
- 1.OA.2** Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

Understand and apply properties of operations and the relationship between addition and subtraction.

- 1.OA.3** Apply properties of operations as strategies to add and subtract. (Note: Students need not use formal terms for these properties.) *Examples: If  $8 + 3 = 11$  is known, then  $3 + 8 = 11$  is also known. (Commutative property of addition.) To add  $2 + 6 + 4$ , the second two numbers can be added to make a ten, so  $2 + 6 + 4 = 2 + 10 = 12$ . (Associative property of addition.)*
- 1.OA.4** Understand subtraction as an unknown-addend problem. *For example, subtract  $10 - 8$  by finding the number that makes 10 when added to 8.*

Add and subtract within 20.

- 1.OA.5** Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- 1.OA.6** Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. 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  $6 + 6 + 1 = 12 + 1 = 13$ ).

Work with addition and subtraction equations.

- 1.OA.7** Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false?  $6 = 6$ ,  $7 = 8 - 1$ ,  $5 + 2 = 2 + 5$ ,  $4 + 1 = 5 + 2$ .*
- 1.OA.8** Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations  $8 + ? = 11$ ,  $\square - 3 = 6$ ,  $6 + \square = \square$ .*

## Number and Operations in Base Ten

1.NBT

Extend the counting sequence.

- 1.NBT.1** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

Understand place value.

- 1.NBT.2** Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
  - a. 10 can be thought of as a bundle of ten ones – called a “ten”... *unitizing a ten*.
  - b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
  - c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).
- 1.NBT.3** Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols  $>$ ,  $=$ , and  $<$ .



**Use place value understanding and properties of operations to add and subtract.**

- 1.NBT.4** Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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 and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
- 1.NBT.5** Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
- 1.NBT.6** Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), 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 and explain the reasoning used.

**Measurement and Data**

**1.MD**

**Measure lengths indirectly and by iterating length units.**

- 1.MD.1** Order three objects by length; compare the lengths of two objects indirectly by using a third object.
- 1.MD.2** Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*

**Tell and write time.**

- 1.MD.3** Tell and write time in hours and half-hours using analog and digital clocks.

**Represent and interpret data.**

- 1.MD.4** Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

**Geometry**

**1.G**

**Reason with shapes and their attributes.**

- 1.G.1** Distinguish between defining attributes (e.g., triangles are closed and three-sided) *versus* non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
- 1.G.2** Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and to compose new shapes from the composite shape. (Note: Students do not need to learn formal names such as “right rectangular prism.”)
- 1.G.3** Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares..

