

HOWELL TOWNSHIP PUBLIC SCHOOLS

MATHEMATICS CURRICULUM
FRAMEWORK

GRADE 2

BOARD APPROVED: August 23, 2017

Howell Township Public Schools
2nd Grade Curriculum Map

Pacing	September	October	November	December	January	February	March	April	May	June
	<p>Topic 1: Fluently Add and Subtract Within 20</p> <p>Topic 2: Work with Equal Groups</p>	<p>Topic 3: Add Within 100 Using Strategies</p> <p>Topic 4: Fluently Add Within 100</p>	<p>Topic 5: Subtract Within 100 Using Strategies</p>	<p>Topic 6: Fluently Subtract Within 100</p>	<p>Topic 7: More Solving Problems Involving Addition and Subtraction</p> <p>Topic 8: Work with Time and Money</p>	<p>Topic 9: Numbers to 1,000</p> <p>Topic 10: Add Within 1,000 Using Models and Strategies</p>	<p>Topic 11: Subtract Within 1,000 Using Models and Strategies</p> <p>Topic 12: Measuring Length</p>	<p>Topic 13: More Addition, Subtraction, and Length</p> <p>Topic 14: Graphs and Data</p>	<p>Topic 15: Shapes and Their Attributes</p>	Step Up to Grade 3
Calendar Math	September	October	November	December	January	February	March	April	May	June
NJSLS Domain	Operations and Algebraic Thinking	Number and Operations in Base Ten	Number and Operations in Base Ten	Number and Operations in Base Ten	Number and Operations Base Ten Measurement and Data	Number and Operations in Base Ten	Number and Operations in Base Ten Measurement and Data	Measurement and Data	Geometry	
District Assessments	End of Year Assessment STAR Math Fluency Assessment	Fluency Assessment	Fluency Assessment	Fluency Assessment	STAR Math Fluency Assessment	Fluency Assessment	Fluency Assessment	PARCC Math Fluency Assessment	Fluency Assessment	End of Year Assessment
Mathematical Practices	Construct Arguments MP.3 <i>(Also, MP.1,</i>	Use Appropriate Tools MP.5 <i>(Also,</i>	Critiquing Reasoning MP.3 <i>(Also,</i>	Reasoning MP.2 <i>(Also, MP.1,</i>	Reasoning MP.2 <i>(Also, MP.1, MP.3,</i>	Look for and Use Structure MP.7	Make Sense and Persevere MP.1 <i>(Also,</i>	Use Appropriate Tools MP.5 <i>(Also,</i>	Repeated Reasoning MP.8	

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	<i>MP.2, MP.4)</i> Model with Math MP.4 <i>(Also, MP.1, MP.3, MP.5, MP.6, MP.7, MP.8</i>	MP1, MP.2, MP.3) Model with Math MP.4 <i>(ALso, MP.1, MP.2, MP.3)</i>	<i>MP.1, MP.4, MP.7)</i>	<i>MP.4, MP.5, MP.6)</i>	<i>MP.4, MP.7, MP.8)</i>	<i>(Also, MP.1, MP.2, MP.3,)</i> Repeated Reasoning MP.8 <i>(Also, MP.1, MP.2, MP.3, MP.4)</i>	<i>MP.2, MP.3, MP.8)</i> Precision MP.6 <i>(Also, MP.1, MP.2, MP.3, MP.5)</i>	MP1, MP.3, MP.4, MP.6, MP.8) Reasoning MP.2 <i>(Also, MP.1, MP.3, MP.4, MP.6, MP.8)</i>	<i>(Also, MP.1, MP.2, MP.3, MP.4, MP.7)</i>	
NJSLS – Technology	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, 8.1.2.A.4, 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	8.1.2.A.1, , 8.1.2.A.4, , 8.1.2.E.1, 8.2.2.E.1, 8.2.2.E.4, 8.2.2.C.1	
NJSLS - Career Ready Practices	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	CRP.2, CRP.4, CRP.6, CRP.8, CRP.11, CRP.12	

Unit Summary	NJSLS Standards	Essential Questions
Unit 1:	2.OA.B.2 Fluently add and subtract within 20 using mental strategies. ² By end of Grade 2, know from	What are strategies for finding addition and subtraction facts?

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<p>In this unit, students will focus on addition and subtraction within 20 using strategies such as counting on, counting back, doubles, near doubles, and make 10. (Topic 1)</p>	<p>memory all sums of two one-digit numbers.</p>	
<p>Learning Goals:</p> <ul style="list-style-type: none"> • Students will be able to add and subtract within 20. 		
<p>Vocabulary: equation, addends, sum, doubles, near doubles, differences</p>		
<p>Fluency Expectations: 2.OA.B.2 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.</p>		
<p>Unit 1 Student Goals: I will be able to add and subtract within 20 using mental strategies.</p>		
Unit Summary	NJSL Standards	Essential Questions
<p>Unit 2:</p> <p>In this unit, students will focus on determining whether a number is even or odd, and on finding the total number of objects in situations involving equal groups of objects. (Topic 2)</p>	<p>2.OA.A.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.¹</p> <p>2.OA.B.2 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.</p> <p>2.OA.C.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</p>	<p>How can making groups of ten make counting easier?</p>

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	<p>addends.</p> <p>2.OA.C.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.</p>	
<p>Learning Goals:</p> <ul style="list-style-type: none"> Students will be able to work with equal groups of objects to gain foundations for multiplication. 		
<p>Vocabulary: even, odd, arrays, rows, columns, bar diagram,</p>		
<p>Fluency Expectations: 2.OA.B.2 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.</p>		
<p>Unit 2 Student Goals: I will be able to add and subtract within 20 using mental strategies.</p>		
Unit Summary	NJSL Standards	Essential Questions
<p>Unit 3:</p> <p>In this unit, students will focus on addition and subtraction within 100 using strategies and algorithms. Strategies such as using a hundreds chart, open number line, and breaking numbers apart will be modeled throughout this unit. Students will begin to develop computational fluency using the partial-sums method and beginning to develop a foundation for the standard algorithm for addition and subtraction (Topics 3-6)</p> <p>Students will represent and solve one-and two-step word problems involving situations of “add to”, “take from” , “put together”, “take apart”, and “compare” with unknowns in any position. Students will represent the numerical</p>	<p>2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p>2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.</p> <p>2.NBT.B.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.³</p> <p>2.OA.A.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</p>	<p>What are strategies for adding numbers to 100?</p> <p>What are strategies for subtracting numbers to 100?</p> <p>How can you solve word problems that use adding and subtracting?</p>

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relationships in the word problems using drawing, bar diagrams, and equations with a symbol for the unknown number. Students will fluently add and subtract within 100 to find the solution.	problem. ¹	
<p>Learning Goals:</p> <ul style="list-style-type: none"> • The student will be able to use place value understanding and properties of operations to add and subtract. • The student will be able to use place value understanding and properties of operations to add and subtract. • Students will use place value understanding and properties of operations to add and subtract. • Students will use place value understanding and properties of operations to add and subtract. • Students will be able to represent and solve problems involving addition and subtraction. 		
Vocabulary: tens, ones, open number line, break apart, mental math, compensation, partial sum, regroup, compatible numbers,		
Fluency Expectations: 2.OA.B.2 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.		
Unit 3 Student Goals: I will be able to add and subtract within 20 using mental strategies.		
Unit Summary	NJSL Standards	Essential Questions
<p>Unit 4:</p> <p>In this unit, students will focus solving problems coins and bills, telling time to the nearest 5 minutes using a.m. and p.m., and telling time before and after the hour. Students will use their skip counting strategies for counting money and time. Students will enhance their understanding of place value through counting</p>	<p>2.MD.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.</p> <p>2.MD.C.8 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?</p> <p>2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.</p>	<p>Why is it important to understand time and money in real-life?</p>

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money.	<p>2.OA.A.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.¹</p>	
<p>Learning Goals:</p> <ul style="list-style-type: none"> Students will be able to work with time and money. 		
<p>Vocabulary: dime, nickel, penny, quarter, half-dollar, cents, greatest value, least value, dollar, dollar sign, dollar bills, tally marks, quarter past, half past, quarter to, a.m., p.m</p>		
<p>Fluency Expectations: 2.OA.B.2 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.</p>		
<p>Unit 4 Student Goals: I will be able to add and subtract within 20 using mental strategies.</p>		
Unit Summary	NJSL Standards	Essential Questions
<p>Unit 5:</p> <p>In this unit, students will extend their knowledge of place value to the thousands. Students will focus on expanding their understanding of addition and subtraction to 3-digit numbers using models and strategies. Students will explain why addition and subtraction strategies work using place value and properties of operations. (Topics 9-11)</p>	<p>2.NBT.A.1 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:</p> <p style="padding-left: 40px;">a. 100 can be thought of as a bundle of ten tens - called a “hundred.”</p> <p style="padding-left: 40px;">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</p>	<p>How does the place value system work?</p> <p>What are strategies for adding numbers to 1,000?</p> <p>What are strategies for subtracting numbers to 1,000?</p>

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	<p style="text-align: center;">and 0 ones).</p> <p>2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.</p> <p>2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.</p> <p>2.NBT.A.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>2.NBT.B.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.</p>	
<p>Learning Goals:</p> <ul style="list-style-type: none"> • Students will understand place value. • Students will be able to use place value understanding and properties of operations to add and subtract. 		
<p>Vocabulary: hundred, thousand, digit, place-value chart, standard-form, expanded form, word form, compare, greater than $>$, less than $<$, equals $=$, decrease, increase</p>		
<p>Fluency Expectations: 2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p>		
<p>Unit 5 Student Goals: I will be able to fluently add and subtract within 100 using any strategy that I choose.</p>		
Unit Summary	NJSL Standards	Essential Questions
<p>Unit 6:</p> <p>In this unit, students will use appropriate tools to estimate and measure length in customary and metric units. Students will use everyday objects, such as an eraser, to estimate the length of another object to the nearest unit. (Topic 12)</p>	<p>2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p> <p>2.MD.A.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.</p>	<p>How does knowing, “When measuring length, the longer the chosen unit, the fewer the units are needed; the shorter the unit, the more units are needed” help with measuring length?</p> <p>What are ways to measure</p>

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<p>Students will draw pictures and equations to solve word problems involving measurement. Students will learn that a sum can be represented as the total length of two line segments on a number line and that a subtraction problem can be represented as the difference of two line segments on a number line. (Topic 13)</p>	<p>2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.</p> <p>2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</p> <p>2.MD.B.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.</p> <p>2.MD.B.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.</p> <p>2.OA.A.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.¹</p>	<p>length?</p>
<p>Learning Goals:</p> <ul style="list-style-type: none">• Students will be able to measure and estimate lengths in standard units.• Students will relate addition and subtraction to length.		

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Vocabulary: estimate, inch, foot, yard, height, nearest inch, centimeter, nearest centimeter, meter,		
Fluency Expectations: 2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.		
Unit 6 Student Goals: I will be able to fluently add and subtract within 100 using any strategy that I choose.		
Unit Summary	NJSL Standards	Essential Questions
<p>Unit 7:</p> <p>In this unit, students will collect, represent, and interpret data. Students will practice their measurement skills to generate measurement data. In doing so, students will measure objects, and then display the measurement data in a line plot. Additionally, students will use categorical data to create and interpret bar graphs and pictographs graphs (Topic 14)</p>	<p>2.MD.D.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.</p> <p>2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p> <p>2.MD.D.10 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 problems⁴ using information presented in a bar graph.</p> <p>2.OA.A.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.¹</p>	<p>How can line plots, bar graphs, and pictographs tell a story?</p> <p>How can line plots, bar graphs, and pictographs be used to compare information?</p>
<p>Learning Goals:</p> <ul style="list-style-type: none"> • Students will represent and interpret data. 		
Vocabulary: data, line plot, bar graph, symbol, picture graph		
Fluency Expectations: 2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the		

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relationship between addition and subtraction. Unit 7 Student Goals: I will be able to fluently add and subtract within 100 using any strategy that I choose.		
Unit Summary	NJSLS Standards	Essential Questions
<p>Unit 8:</p> <p>In this unit, students will investigate attributes of shapes and use them to identify and draw triangles, quadrilaterals, pentagons, hexagons, and cubes. Students will partition plane figures into equal shares and use fraction terminology to describe the shares. (Topic 15)</p>	<p>2.G.A.1 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.</p> <p>2.G.A.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.</p> <p>2.G.A.3 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.</p> <p>2.OA.C.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.</p>	<p>How can shapes be described, compared, and broken into parts?</p>
<p>Learning Goals:</p> <ul style="list-style-type: none"> Students will be able to reason with shapes and attributes. 		
<p>Vocabulary: vertices, quadrilaterals, pentagons, hexagons, polygon, angle, right angle, cube, face, edge, equal shares, halves, thirds, fourths</p>		
<p>Fluency Expectations: 2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.</p>		
<p>Unit 8 Student Goals: I will be able to fluently add and subtract within 100 using any strategy that I choose.</p>		