

**Ark Community Charter School
Math Curriculum Framework –Grade 2**

<u>Units</u>	<u>Suggested Pacing</u>	<u>New York State Content Standards</u>	<u>New York State Skills Standards</u>	<u>New York State Performance Indicators</u>	<u>Assessments (Formal/ including state assessments and Informal)</u>
What are your unit titles	When and in what order will the standards be taught and assessed?	What should students know? (Indicate which content is a benchmark standard that will be assessed at this grade level. For those standards assessed at this grade level, identify the tool to be used in the assessment column. Optional: You can also identify essential questions based on the content standards.)	What should students be able to do? (Indicate which skill is a benchmark standard that will be assessed at this grade level (A), and which skills are introduced (I) and/or practiced (P) at this grade level. For those standards assessed at this grade level, identify the tool to be used in the assessment column.)	Indices of quality – What is the nature of the evidence required to demonstrate the standard has been met and the quality of the performance that will be deemed acceptable? Bolded Performance Indicators: Done in chapters <i>Italicized Performance Indicators:</i> Done daily/weekly	What specific tools will be used to assess which content standard or skills standard at this grade level?
The problem solving italicized performance indicators are done daily or at least once a week throughout the year.		Problem Solving Strand	<i>Students will build new mathematical knowledge through problem solving.</i> <i>Students will solve problems that arise in</i>	<i>2.PS.1 Explore, examine, and make observations about a social problem or mathematical situation</i> <i>2.PS.2 Interpret information correctly, identify the problem, and generate possible solutions</i> <i>2.PS.3 Act out or model with manipulatives activities involving mathematical content</i>	Teacher observation One on one or small group consultation Homework Student Practice Book Teacher checklist

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			<p><i>mathematics and in other contexts.</i></p> <p><i>Students will apply and adapt a variety of appropriate strategies to solve problems.</i></p> <p><i>Students will monitor and reflect on the process of mathematical problem solving.</i></p>	<p><i>from literature and/or story telling</i></p> <p><i>2.PS.4 Formulate problems and solutions from everyday situations (e.g., counting the number of children in the class, using the calendar to teach counting).</i></p> <p><i>2.PS.5 Use informal counting strategies to find solutions</i></p> <p><i>2.PS.6 Experience teacher-directed questioning process to understand problems</i></p> <p><i>2.PS.7 Compare and discuss ideas for solving a problem with teacher and/or students to justify their thinking</i></p> <p><i>2.PS.8 Use manipulatives (e.g., tiles, blocks) to model the action in problems</i></p> <p><i>2.PS.9 Use drawings/pictures to model the action in problems</i></p> <p><i>2.PS.10 Explain to others how a problem was solved, giving strategies and justifications</i></p>	<p>Scott Foresman NYS Section Quiz</p> <p>Scott Foresman NYS Chapter Test</p>
The reasoning and proof italicized performance		Reasoning and Proof Strand	Students will recognize reasoning and proof as fundamental aspects of	<p><i>2.RP.1 Understand that mathematical statements can be true or false</i></p> <p><i>2.RP.2 Recognize that</i></p>	<p>Teacher observation</p> <p>One on one or small group consultation</p>

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indicators are done daily or at least once a week throughout the year.			<p>mathematics.</p> <p><i>Students will make and investigate mathematical conjectures.</i></p> <p><i>Students will develop and evaluate mathematical arguments and proofs.</i></p> <p><i>Students will select and use various types of reasoning and methods of proof.</i></p>	<p><i>mathematical ideas need to be supported by evidence</i></p> <p><i>2.RP.3 Investigate the use of knowledgeable guessing as a mathematical tool</i></p> <p><i>2.RP.4 Explore guesses, using a variety of objects and manipulatives</i></p> <p><i>2.RP.5 Justify general claims, using manipulatives</i></p> <p><i>2.RP.6 Develop and explain an argument verbally or with objects</i></p> <p><i>2.RP.7 Listen to and discuss claims other students make</i></p> <p><i>2.RP.8 Use trial and error strategies to verify claims</i></p>	<p>Homework</p> <p>Student Practice Book</p> <p>Teacher checklist</p> <p>Scott Foresman NYS Section Quiz</p> <p>Scott Foresman NYS Chapter Test</p>
The communication italicized performance indicators are done daily or at least once a week throughout the year.		Communication Strand	<p><i>Students will organize and consolidate their mathematical thinking through communication.</i></p> <p><i>Students will communicate their mathematical thinking coherently and clearly</i></p>	<p><i>2.CM.1 Understand how to organize their thought processes</i></p> <p><i>2.CM.2 Verbally support their reasoning and answer</i></p> <p><i>2.CM.3 Share mathematical ideas through the manipulation of objects, drawings, pictures, charts, and symbols in both</i></p>	<p>Teacher observation</p> <p>One on one or small group consultation</p> <p>Homework</p> <p>Student Practice Book</p> <p>Teacher checklist</p>

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			<p><i>to peers, teachers, and others.</i></p> <p><i>Students will analyze and evaluate the mathematical thinking and strategies of others</i></p> <p><i>Students will use the language of mathematics to express mathematical ideas precisely.</i></p>	<p><i>written and verbal explanations</i></p> <p><i>2.CM.4 Listen to solutions shared by other students</i></p> <p><i>2.CM.5 Formulate mathematically relevant questions</i></p> <p><i>2.CM.6 Use appropriate mathematical terms, vocabulary, and language</i></p>	<p>Scott Foresman NYS Section Quiz</p> <p>Scott Foresman NYS Chapter Test</p>
<p>The connections italicized performance indicators are done daily or at least once a week throughout the year.</p>		<p>Connections Strand</p>	<p><i>Students will recognize and use connections among mathematical ideas.</i></p>	<p><i>2.CN.1 Recognize the connections of patterns in their everyday experiences to mathematical ideas</i></p> <p><i>2.CN.2 Understand and use the connections between numbers and the quantities they represent to solve problems</i></p> <p><i>2.CN.3 Compare the similarities and differences of mathematical ideas</i></p> <p><i>2.CN.4 Understand how models of situations involving objects, pictures, and symbols relate to mathematical ideas</i></p> <p><i>2.CN.5 Understand meanings of</i></p>	<p>Teacher observation</p> <p>One on one or small group consultation</p> <p>Homework</p> <p>Student Practice Book</p> <p>Teacher checklist</p> <p>Scott Foresman NYS Section Quiz</p> <p>Scott Foresman NYS Chapter Test</p>

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			<p><i>Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.</i></p> <p><i>Students will recognize and apply mathematics in contexts outside of mathematics</i></p>	<p><i>operations and how they relate to one another</i></p> <p><i>2.CN.6 Understand how mathematical models represent quantitative relationships</i></p> <p><i>2.CN.7 Recognize the presence of mathematics in their daily lives</i></p> <p><i>2.CN.8 Recognize and apply mathematics to solve problems</i></p> <p><i>2.CN.9 Recognize and apply mathematics to objects, pictures and symbols</i></p>	
<p>The connections italicized performance indicators are done daily or at least once a week throughout the year.</p>		<p>Representation Strand</p>	<p><i>Students will create and use representations to organize, record, and communicate mathematical ideas.</i></p> <p><i>Students will select,</i></p>	<p><i>2.R.1 Use multiple representations, including verbal and written language, acting out or modeling a situation, drawings, and/or symbols as representations</i></p> <p><i>2.R.2 Share mental images of mathematical ideas and understandings</i></p> <p><i>2.R.3 Use standard and nonstandard representations</i></p> <p><i>2.R.4 Connect mathematical representations with problem solving</i></p> <p><i>2.R.5 Use mathematics to show</i></p>	<p>Teacher observation</p> <p>One on one or small group consultation</p> <p>Homework</p> <p>Student Practice Book</p> <p>Teacher checklist</p> <p>Scott Foresman NYS Section Quiz</p> <p>Scott Foresman NYS Chapter Test</p>

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			<p><i>apply, and translate among mathematical representations to solve problems. Students will use representations to model and interpret physical, social, and mathematical phenomena.</i></p>	<p><i>and understand physical phenomena (e.g., estimate and represent the number of apples in a tree)</i> 2.R.6 <i>Use mathematics to show and understand social phenomena (e.g., count and represent sharing cookies between friends)</i> 2.R.7 <i>Use mathematics to show and understand mathematical phenomena (e.g., draw pictures to show a story problem or show number value using fingers on your hand)</i></p>	
		<p>Number Sense and Operations Strand</p>	<p><i>Students will understand numbers, multiple ways of representing numbers, relationships among numbers, and number systems.</i></p>	<p>2.N.1 Skip count to 100 by 2's, 5's, 10's 2.N.2 Count back from 100 by 1's, 5's, 10's using a number chart 2.N.3 Skip count by 3's to 36 for multiplication readiness 2.N.4 Skip count by 4's to 48 for multiplication readiness 2.N.5 Compare and order numbers to 100 2.N.6 Develop an understanding of the base ten</p>	

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				<p>system: 10 ones = 1 ten 10 tens = 1 hundred 10 hundreds = 1 thousand</p> <p>2.N.7 Use a variety of strategies to compose and decompose two-digit numbers</p> <p>2.N.8 Understand and use the commutative property of addition</p> <p>2.N.9 Name the number before and the number after a given number, and name the number(s) between two given numbers up to 100 (with and without the use of a number line or a hundreds chart)</p> <p>2.N.10 Use and understand verbal ordinal terms</p> <p>2.N.11 Read written ordinal terms (first through ninth) and use them to represent ordinal relations</p> <p>2.N.12 Use zero as the identity element for addition</p> <p>2.N.13 Recognize the meaning of zero in the place value system (0-100)</p> <p><i>Number Theory</i></p> <p>2.N.14 Use concrete materials</p>	

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			<p><i>Students will understand meanings of operations and procedures, and how they relate to one another.</i></p> <p><i>Students will compute</i></p>	<p>to justify a number as odd or even</p> <p>2.N.15 Determine sums and differences of number sentences by various means (e.g., families, related facts, inverse operations, addition doubles, and doubles plus one)</p> <p>2.N.16 Use a variety of strategies to solve addition and subtraction problems using one- and two-digit numbers with and without regrouping</p> <p>2.N.17 Demonstrate fluency and apply addition and subtraction facts up to and including 18</p> <p>2.N.18 Use doubling to add 2-digit numbers</p> <p>2.N.19 Use compensation to add 2-digit numbers</p> <p>2.N.20 Develop readiness for multiplication by using repeated addition</p> <p>2.N.21 Develop readiness for division by using repeated subtraction, dividing objects into groups (fair share)</p>	<p>NYS Quiz A; Graded practice page</p>

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			<i>accurately and make reasonable estimates.</i>	2.N.22 Estimate the number in a collection to 100 and then compare by counting the actual items in the collection	
		Algebra Strand	<p><i>Students will perform algebraic procedures accurately.</i></p> <p><i>Students will recognize, use, and represent algebraically patterns, relations, and functions.</i></p>	<p>2.A.1 Use the symbols $<$, $>$, $=$ (with and without the use of a number line) to compare whole numbers up to 100</p> <p>2.A.2 Describe and extend increasing or decreasing (+,-) sequences and patterns (numbers or objects up to 100)</p>	
		Geometry Strand	<p><i>Students will use visualization and spatial reasoning to analyze characteristics and properties of geometric shapes</i></p> <p><i>Students will identify and justify geometric relationships, formally and informally.</i></p> <p><i>Students will apply transformations and symmetry to analyze</i></p>	<p>2.G.1 Experiment with slides, flips, and turns to compare two-dimensional shapes</p> <p>2.G.2 Identify and appropriately name two-dimensional shapes: circle, square, rectangle, and triangle (both regular and irregular)</p> <p>2.G.3 Compose (put together) and decompose (break apart) two-dimensional shapes</p> <p>G.4 Group objects by like properties</p> <p>2.G.5 Explore and predict the outcome of slides, flips, and</p>	

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			<i>problem solving situations.</i>	turns of two-dimensional shapes 2.G.6 Explore line symmetry	
		Measurement Strand	<p><i>Students will determine what can be measured and how, using appropriate methods and formulas.</i></p> <p><i>Students will use units to give meaning to measurements</i></p>	<p>2.M.1 Use non-standard and standard units to measure both vertical and horizontal lengths</p> <p>2.M.2 Use a ruler to measure standard units (including whole inches and whole feet)</p> <p>2.M.3 Compare and order objects according to the attribute of length</p> <p>2.M.4 Recognize mass as a qualitative measure (e.g., Which is heavier? Which is lighter?)</p> <p>2.M.5 Compare and order objects, using lighter than and heavier than</p> <p>2.M.6 Know and recognize coins (penny, nickel, dime, quarter) and bills (\$1, \$5, \$10, and \$20)</p> <p>2.M.7 Recognize the whole dollar notation as \$1, etc.</p> <p>2.M.8 Identify equivalent combinations to make one dollar</p> <p>2.M.9 Tell time to the half hour</p>	

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			<i>Students will develop strategies for estimating measurements.</i>	and five minutes using both digital and analog clocks 2.M.10 Select and use standard (customary) and non-standard units to estimate measurements	
		Statistics and Probability Strand	<i>Students will collect, organize, display, and analyze data.</i> <i>Students will make predictions that are based upon data analysis.</i>	2.S.1 Formulate questions about themselves and their surroundings 2.S.2 Collect and record data (using tallies) related to the question Display data in pictographs and bar graphs using concrete objects or a representation of the object 2.S.4 Compare and interpret data in terms of describing quantity (similarity or differences) 2.S.5 Discuss conclusions and make predictions from graphs	
Chapter 1	13 Days			2.N.15 Determine sums and differences of number sentences by various means (e.g., families, related facts, inverse operations, addition doubles, and doubles plus one)	Scott Foresman Program NYS tests: -1/3 through the chapter – Quiz A -2/3 through the chapter – Quiz B -Chapter Test

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				<p>2.N.17 Demonstrate fluency and apply addition and subtraction facts up to and including 18</p> <p>2.N.8 Understand and use the commutative property of addition</p>	<p>Scott Foresman Benchmark Test</p> <p>Informal daily assessments</p> <p>Scott Foresman Student Practice Book (homework)</p> <p>Problem of the Day</p>
Chapter 2	13 Days			<p>2.N.15 Determine sums and differences of number sentences by various means (e.g., families, related facts, inverse operations, addition doubles, and doubles plus one)</p> <p>2.N.16 Use a variety of strategies to solve addition and subtraction problems using one- and two-digit numbers with and without regrouping</p> <p>2.N.17 Demonstrate fluency and apply addition and subtraction facts up to and including 18</p>	<p>Scott Foresman Program NYS tests: -1/3 through the chapter – Quiz A -2/3 through the chapter – Quiz B -Chapter Test</p> <p>Scott Foresman Benchmark Test</p> <p>Informal daily assessments</p> <p>Scott Foresman Student Practice Book (homework)</p>

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Chapter 3	20 Days			<p>2.A.1 Use the symbols $<$, $>$, $=$ (with and without the use of a number line) to compare whole numbers up to 100</p> <p>2.A.2 Describe and extend increasing or decreasing (+,-) sequences and patterns (numbers or objects up to 100)</p> <p>2.N.1 Skip count to 100 by 2's, 5's, 10's</p> <p>2.N.2 Count back from 100 by 1's, 5's, 10's using a number chart</p> <p>2.N.5 Compare and order</p>	<p>Scott Foresman Program NYS tests: -1/3 through the chapter – Quiz A -2/3 through the chapter – Quiz B -Chapter Test</p> <p>Scott Foresman Benchmark Test</p> <p>Informal daily assessments</p> <p>Scott Foresman Student Practice Book (homework)</p> <p>Problem of the Day</p>

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