

Mathematics Curriculum: Grade Two



The following maps outline the Common Core Standards for grade two mathematics determined by the State Standards Initiative. Below is a list of assessment tools that are recommended for tracking student progress in these areas. In addition, resources that can be used in conjunction with instruction of these standards are provided but not limited to the list below.

Assessment:

Formative Assessment	Class-Work Review
Open-Ended Problems	Project-Based Assessment
Self-Assessment	Timed Drills
Teacher Observation	End of Year Assessment
Benchmark Assessment	Math Software (ex. Study Island)
Homework Review	Group & Cooperative Work

Resources:

Counters (variety)	Center Games	Tangrams
Flashcards	Ten Frame	Geometric Shapes
Math Word Wall	Blocks	Geo-Board
Connecting Cubes	Calendar	Textbooks
Number Line	100 Chart	Attribute Blocks
Work Mats	Math Songs/Poems	Craft Sticks
Computer Software	Calculators	Wiki-Sticks
SmartBoard	Money/Coins	Pattern Blocks
Flannel Board	Measurement Tools	Three Dimensional Shapes
Center Games	Judy Clock	Fraction Tiles
Concrete Objects	Small Student Clocks	Bar Models
Mini White Boards	Time Bingo	1's, 10's, 100's Bars/Cubes
Manipulatives	Digital Clock	Math Journals
Math/Pocket Charts	Analog Clock	

Websites:

<http://www.aplusmath.com>
<http://www.studyisland.com>
<http://www.funbrain.com>
<http://www.songsforteaching.com>

References: <http://www.ade.az.gov/standards/math/2010MathStandards>

**Math Curriculum
Grade Two**

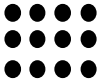

Essential Question(s): How do operations affect numbers?			
How do we use addition and subtraction to solve problems?			
21st Century Theme: Financial, Economic, Business, and Entrepreneurial Literacy			
21st Century Skills: Critical Thinking and Problem Solving			
Content: Operations & Algebraic Thinking			
Standards: 2. OA			
A. Represent and solve problems involving addition and subtraction.			
Vocabulary: Digits, sum, addends, ten frame, difference, equal			
Skills	Instructional Procedures	Explanations and Examples	Interdisciplinary Connections
<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.</p>	<p>*Concretely model and discuss a large variety of problems. Use drawings & equations with a symbol for the unknown number to represent the problem.</p> <p>*Construct and solve open simple sentences.</p> <p>*Solve for results unknown: $6-2=$__ or $n+3=5$</p> <p>*Solve for parts unknown: $3+$__=8</p>	<p>Word problems that are connected to students' lives can be used to develop fluency with addition and subtraction. Table 1 describes the four different addition and subtraction situations and their relationship to the position of the unknown.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Take-from example: David had 63 stickers. He gave 37 to Susan. How many stickers does David have now? $63 - 37 = \square$ • Add to example: David had \$37. His grandpa gave him some money for his birthday. Now he has \$63. How much money did David's grandpa give him? $\\$37 + \square = \\63 • Compare example: David has 63 stickers. Susan has 37 stickers. How many more stickers does David have than Susan? $63 - 37 = \square$ <ul style="list-style-type: none"> ○ Even though the modeling of the two problems above is different, the equation, $63 - 37 = ?$, can represent both situations (How many more do I need to make 63?) • Take-from (Start Unknown) David had some stickers. He gave 37 to Susan. Now he has 26 stickers. How many stickers did David have before? $\square - 37 = 26$ <p>It is important to attend to the difficulty level of the problem situations in relation to the position of the unknown.</p> <ul style="list-style-type: none"> • Result Unknown problems are the least complex for students followed by Total Unknown and Difference Unknown. • The next level of difficulty includes Change Unknown, Addend Unknown, followed by Bigger Unknown. • The most difficult are Start Unknown, Both Addends Unknown, and Smaller Unknown. <p>Second grade students should work on ALL problem types regardless of the level of</p>	<p>Art: Creating Pictures depicting addition & subtracting.</p> <p>Writing: Create addition & subtraction word problems.</p>

		<p>difficulty. Students can use interactive whiteboard or document camera to demonstrate and justify their thinking.</p> <p>This standard focuses on developing an algebraic representation of a word problem through addition and subtraction --the intent is not to introduce traditional algorithms or rules.</p>	
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**Math Curriculum
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Essential Question(s): How do we use mental strategies to add & subtract?			
21st Century Theme: Financial, Economic, Business, and Entrepreneurial Literacy			
21st Century Skills: Life and Career			
Content: Operations & Algebraic Thinking			
Standards: 2. OA			
B. Add and subtract within 20.			
Vocabulary: Fact families, doubles, left over, sums			
Skills	Instructional Procedures	Explanations and Examples	Interdisciplinary Connections
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>*Model ways to make numbers up to 20 using ten frames, counting on, using doubles and near doubles, making tens</p> <p>*Visualize single digit numbers on a ten frame.</p>	<p>This standard is strongly connected to all the standards in this domain. It focuses on students being able to fluently add and subtract numbers to 20. Adding and subtracting fluently refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently.</p> <p>Mental strategies help students make sense of number relationships as they are adding and subtracting within 20. The ability to calculate mentally with efficiency is very important for all students. Mental strategies may include the following:</p> <ul style="list-style-type: none"> • Counting on • Making tens ($9 + 7 = 10 + 6$) • Decomposing a number leading to a ten ($14 - 6 = 14 - 4 - 2 = 10 - 2 = 8$) • Fact families ($8 + 5 = 13$ is the same as $13 - 8 = 5$) • Doubles • Doubles plus one ($7 + 8 = 7 + 7 + 1$) <p>However, the use of objects, diagrams, or interactive whiteboards, and various strategies will help students develop fluency.</p>	<p>Real Life Skills: ex. How many more papers are needed?</p> <p>Music: addition or subtraction songs</p>

**Math Curriculum
Grade Two**

Essential Question(s): How can equations be used to express a sum of addends?			
21st Century Theme: Financial, Economic, Business, and Entrepreneurial Literacy			
21st Century Skills: Critical Thinking			
Content: Operations & Algebraic Thinking			
Standards: 2. OA			
C. Work with equal groups of objects to gain foundations for multiplication.			
Vocabulary: Remainder, Odd, Even, Row, Column, Array			
Skills	Instructional Procedures	Explanations and Examples	Interdisciplinary Connections
<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.</p>	<p>*Pairing groups of objects Counting objects in a group by 2s</p> <p>*Write an equation to express an even number as a sum of two equal addends $\underline{\quad} + \underline{\quad} = 12$ even + even = even $\underline{\quad} + \underline{\quad} = 14$ odd + odd = even</p>	<p>Students explore odd and even numbers in a variety of ways including the following: students may investigate if a number is odd or even by determining if the number of objects can be divided into two equal sets, arranged into pairs or counted by twos. After the above experiences, students may derive that they only need to look at the digit in the ones place to determine if a number is odd or even since any number of tens will always split into two even groups.</p> <p>Example:</p> <p>Students need opportunities writing equations representing sums of two equal addends, such as: $2 + 2 = 4$, $3 + 3 = 6$, $5 + 5 = 10$, $6 + 6 = 12$, or $8 + 8 = 16$. This understanding will lay the foundation for multiplication and is closely connected to 2.OA.4.</p> <p>The use of objects and/or interactive whiteboards will help students develop and demonstrate various strategies to determine even and odd numbers.</p>	<p>Literature: A Reminder of One by: Pinczes, Eleanor J. Houghton Mifflin 2002</p> <p>Even Steven and Odd Todd by: Kathryn Cris Taldi (Hello Math Series- Can be found on U-Tube)</p> <p>Count on Pablo by: de Rubertis, Barbara Kane Press 1999</p>
<p>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>*Write an equation to express the total as a sum of equal addends</p> <p>*Create a model array of...stickers, stamps, tiles, counters, etc.</p>	<p>Students may arrange any set of objects into a rectangular array. Objects can be cubes, buttons, counters, etc. Objects do not have to be square to make an array. Geoboards can also be used to demonstrate rectangular arrays. Students then write equations that represent the total as the sum of equal addends as shown below.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>$4 + 4 + 4 = 12$</p> </div> <div style="text-align: center;">  <p>$5 + 5 + 5 + 5 = 20$</p> </div> </div> <p>Interactive whiteboards and document cameras may be used to help students visualize and create arrays.</p>	<p>Literature: Each Orange Had 8 Slices by: Giganti Mulberry Books, NY 1999</p>

**Math Curriculum
Grade Two**

Essential Question(s): How do we use place value to represent numbers?			
21st Century Theme: Financial, Economic, Business, and Entrepreneurial Literacy			
21st Century Skills: Critical Thinking and Problem Solving			
Content: Number and Operations in Base Ten			
Standards: 2. NBT			
A. Understand place value.			
Vocabulary: Ones, tens, hundreds, skip count , standard form, expanded form, fact family, ordinal numbers, zero property, word form, greater than, less than, greatest, least number, sentence, more than, less than			
<p>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>100 can be thought of as a bundle of ten tens — called a “hundred.”</p> <p>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).</p>	<p>*Understand that the three digits of a three digit number represent amounts of hundreds, tens and ones.</p>	<p>Understanding that 10 ones make one ten and that 10 tens make one hundred is fundamental to students’ mathematical development. Students need multiple opportunities counting and “bundling” groups of tens in first grade. In second grade, students build on their understanding by making bundles of 100s with or without leftovers using base ten blocks, cubes in towers of 10, ten frames, etc. This emphasis on bundling hundreds will support students’ discovery of place value patterns.</p> <p>As students are representing the various amounts, it is important that emphasis is placed on the language associated with the quantity. For example, 243 can be expressed in multiple ways such as 2 groups of hundred, 4 groups of ten and 3 ones, as well as 24 tens with 3 ones. When students read numbers, they should read in standard form as well as using place value concepts. For example, 243 should be read as “two hundred forty-three” as well as two hundreds, 4 tens, 3 ones.</p> <p>A document camera or interactive whiteboard can also be used to demonstrate “bundling” of objects. This gives students the opportunity to communicate their counting and thinking.</p>	<p>Literature: The King's Commissioners by: Aileen Friedman</p>

**Math Curriculum
Grade Two**

Essential Question(s): How can we understand place value and use properties of operations to add and subtract?			
How do you explain the strategies used to add and subtract?			
How do we use mental strategies to add multiples of ten?			
21st Century Theme: Financial, Economic, Business, and Entrepreneurial Literacy			
21st Century Skills: Critical Thinking and Problem Solving			
Content: Number and Operations in Base Ten			
Standards: 2. NBT			
B. Use place value understanding and properties of operations to add and subtract.			
Vocabulary: Place value chart, regroup, add, subtract, compare, doubles, estimate, difference, sum			
Skills	Instructional Procedures	Explanations and Examples	Interdisciplinary Connections
5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	*Solve multi-digit addition and subtraction problems using a bar model	<p>Adding and subtracting fluently refers to knowledge of procedures, knowledge of when and how to use them appropriately, and skill in performing them flexibly, accurately, and efficiently. Students should have experiences solving problems written both horizontally and vertically. They need to communicate their thinking and be able to justify their strategies both verbally and with paper and pencil.</p> <p>Addition strategies based on place value for $48 + 37$ may include:</p> <ul style="list-style-type: none"> • Adding by place value: $40 + 30 = 70$ and $8 + 7 = 15$ and $70 + 15 = 85$. • Incremental adding (breaking one number into tens and ones); $48 + 10 = 58$, $58 + 10 = 68$, $68 + 10 = 78$, $78 + 7 = 85$ • Compensation (making a friendly number): $48 + 2 = 50$, $37 - 2 = 35$, $50 + 35 = 85$ <p>Subtraction strategies based on place value for $81 - 37$ may include:</p> <ul style="list-style-type: none"> • Adding Up (from smaller number to larger number): $37 + 3 = 40$, $40 + 40 = 80$, $80 + 1 = 81$, and $3 + 40 + 1 = 44$. • Incremental subtracting: $81 - 10 = 71$, $71 - 10 = 61$, $61 - 10 = 51$, $51 - 7 = 44$ • Subtracting by place value: $81 - 30 = 51$, $51 - 7 = 44$ <p>Properties that students should know and use are:</p> <ul style="list-style-type: none"> • Commutative property of addition (Example: $3 + 5 = 5 + 3$) • Associative property of addition (Example: $(2 + 7) + 3 = 2 + (7+3)$) • Identity property of 0 (Example: $8 + 0 = 8$) <p>Students in second grade need to communicate their understanding of why some properties work for some operations and not for others.</p> <ul style="list-style-type: none"> • Commutative Property: In first grade, students investigated whether the commutative property works with subtraction. The intent was for students to recognize that taking 5 from 8 is not the same as taking 8 	<p>Language Arts: Have students create their own word problems.</p> <p>Social Studies: Have students add and subtract to find out how many miles it is between two points.</p>

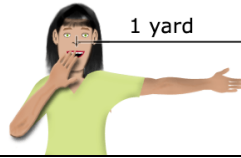
		<p>from 5. Students should also understand that they will be working with numbers in later grades that will allow them to subtract larger numbers from smaller numbers. This exploration of the commutative property continues in second grade.</p> <ul style="list-style-type: none"> • Associative Property: Recognizing that the associative property does not work for subtraction is difficult for students to consider at this grade level as it is challenging to determine all the possibilities. 	
6. Add up to four two-digit numbers using strategies based on place value and properties of operations.	*Apply the following properties of addition: Commutative, Zero as the identity element and Associative	Students demonstrate addition strategies with up to four two-digit numbers either with or without regrouping. Problems may be written in a story problem format to help develop a stronger understanding of larger numbers and their values. Interactive whiteboards and document cameras may also be used to model and justify student thinking.	
7. 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.	<p>*Use different methods to develop fluency in adding and subtracting multi-digit numbers</p> <p>*Use the inverse relationship between addition and subtraction</p> <p>*Recall addition and subtraction facts</p> <p>*Add and subtract whole numbers to 1000</p> <p>*Model addition and subtraction with place value</p>	There is a strong connection between this standard and place value understanding with addition and subtraction of smaller numbers. Students may use concrete models or drawings to support their addition or subtraction of larger numbers. Strategies are similar to those stated in 2.NBT.5, as students extend their learning to include greater place values moving from tens to hundreds to thousands. Interactive whiteboards and document cameras may also be used to model and justify student thinking.	Language Arts: Have students write addition and subtraction equations and stories related to place value.
8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from	*Use mental math strategies to add and subtract Round to the nearest ten to estimate sums and difference	Students need many opportunities to practice mental math by adding and subtracting multiples of 10 and 100 up to 900 using different starting points. They can practice this by counting and thinking aloud, finding missing numbers in a sequence, and finding missing numbers on a number line or hundreds	Physical Education: Picking cherries to bake a pie. http://www.uen.org/Lessonplan/preview.cgi?LPid=16251

<p>a given number 100–900.</p>		<p>chart. Explorations should include looking for relevant patterns.</p> <p>Mental math strategies may include:</p> <ul style="list-style-type: none"> • counting on; 300, 400, 500, etc. • counting back; 550, 450, 350, etc. <p>Examples:</p> <ul style="list-style-type: none"> • 100 more than 653 is _____ (753) • 10 less than 87 is _____ (77) • “Start at 248. Count up by 10s until I tell you to stop.” <p>An interactive whiteboard or document camera may be used to help students develop these mental math skills.</p>	
<p>9. Explain why addition and subtraction strategies work, using place value and the properties of operations.</p>	<p>*Explanations may be supported by drawings or objects</p> <p>*Construct, use, and explain in writing procedures for performing addition and subtraction in problem solving.</p> <p>*Model addition and subtraction with place value</p>	<p>Students need multiple opportunities explaining their addition and subtraction thinking. Operations embedded within a meaningful context promote development of reasoning and justification.</p> <p>Example: Mason read 473 pages in June. He read 227 pages in July. How many pages did Mason read altogether?</p> <ul style="list-style-type: none"> • Karla’s explanation: $473 + 227 = \underline{\hspace{2cm}}$. I added the ones together (3 + 7) and got 10. Then I added the tens together (70 + 20) and got 90. I knew that $400 + 200$ was 600. So I added $10 + 90$ for 100 and added $100 + 600$ and found out that Mason had read 700 pages altogether. • Debbie’s explanation: $473 + 227 = \underline{\hspace{2cm}}$. I started by adding 200 to 473 and got 673. Then I added 20 to 673 and I got 693 and finally I added 7 to 693 and I knew that Mason had read 700 pages altogether. • Becky’s explanation: I used base ten blocks on a base ten mat to help me solve this problem. I added 3 ones (units) plus 7 ones and got 10 ones which made one ten. I moved the 1 ten to the tens place. I then added 7 tens rods plus 2 tens rods plus 1 tens rod and got 10 tens or 100. I moved the 1 hundred to the hundreds place. Then I added 4 hundreds plus 2 hundreds plus 1 hundred and got 7 hundreds or 700. So Mason read 700 books. <p>Students should be able to connect different representations and explain the connections. Representations can include numbers, words (including mathematical language), pictures, number lines, and/or physical objects. Students should be able to use any/all of these representations as needed.</p> <p>An interactive whiteboard or document camera can be used to help students develop and explain their thinking.</p>	<p>Language Art: Write an explanation of explaining why to their answer. Write an explanation of the addition and subtraction strategy applied.</p>

**Math Curriculum
Grade Two**

Essential Question(s): How is measurement used in the real world?			
21st Century Theme: Global Awareness			
21st Century Skills: Critical Thinking and Problem Solving			
Content: Measurement and Data			
Standards: 2. MD			
A. Measure and estimate lengths in standard units.			
Vocabulary: Length, inch, foot, yard, meter, centimeter, measure, ruler, measuring tape.			
Skills	Instructional Procedures	Explanations and Examples	Interdisciplinary Connections
1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	*Select and use appropriate tools such as rulers, yardsticks, meter sticks and measuring tape. (inch, foot, yard & centimeter)	Students in second grade will build upon what they learned in first grade from measuring length with non-standard units to the new skill of measuring length in metric and U.S. Customary with standard units of measure. They should have many experiences measuring the length of objects with rulers, yardsticks, meter sticks, and tape measures. They will need to be taught how to actually use a ruler appropriately to measure the length of an object especially as to where to begin the measuring. Do you start at the end of the ruler or at the zero?	Language Arts: Write directions on how to measure something for someone who doesn't know how.
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.	*Describe how the two measurements relate to the size of the unit chosen. *Compare and measure lengths using customary and metric units.	Students need multiple opportunities to measure using different units of measure. They should not be limited to measuring within the same standard unit. Students should have access to tools, both U.S. Customary and metric. The more students work with a specific unit of measure, the better they become at choosing the appropriate tool when measuring. Students measure the length of the same object using different tools (ruler with inches, ruler with centimeters, a yardstick, or meter stick). This will help students learn which tool is more appropriate for measuring a given object. They describe the relationship between the size of the measurement unit and the number of units needed to measure something. For instance, a student might say, "The longer the unit, the fewer I need." Multiple opportunities to explore provide the foundation for relating metric units to customary units, as well as relating within customary (inches to feet to yards) and within metric (centimeters to meters).	Science: Measure the circumference of a pumpkin or the trunk of a tree.
3. Estimate lengths using units of inches, feet, centimeters, and meters.	*Solve problems involving estimation, measuring and computing length.	Estimation helps develop familiarity with the specific unit of measure being used. To measure the length of a shoe, knowledge of an inch or a centimeter is important so that one can approximate the length in inches or centimeters. Students should begin practicing estimation with items which are familiar to them (length of desk, pencil, favorite book, etc.). Some useful benchmarks for measurement are:	

- First joint to the tip of a thumb is about an inch
- Length from your elbow to your wrist is about a foot
- If your arm is held out perpendicular to your body, the length from your nose to the tip of your fingers is about a yard



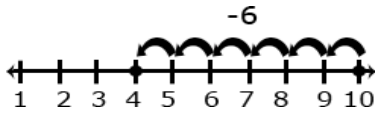
4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.

*Solve problems involving measuring and computing length.

Second graders should be familiar enough with inches, feet, yards, centimeters, and meters to be able to compare the differences in lengths of two objects. They can make direct comparisons by measuring the difference in length between two objects by laying them side by side and selecting an appropriate standard length unit of measure. Students should use comparative phrases such as “It is longer by 2 inches” or “It is shorter by 5 centimeters” to describe the difference between two objects. An interactive whiteboard or document camera may be used to help students develop and demonstrate their thinking.

**Math Curriculum
Grade Two**

Essential Question(s): How does measurement relate to addition and subtraction?			
21st Century Theme: Global Awareness			
21st Century Skills: Critical Thinking and Problem Solving			
Content: Measurement and Data			
Standards: 2. MD			
B. Relate addition and subtraction to length.			
Vocabulary: Length, inch, foot, yard, meter, centimeter, measure, ruler, measuring tape.			
Skills	Instructional Procedures	Explanations and Examples	Interdisciplinary Connections
<p>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>*Use drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.</p> <p>*Build skills in addition and subtraction and measurement through problem solving.</p> <p>*Solve real world problems involving addition, subtraction and multiplication.</p> <p>*Apply and explain problem solving processes.</p>	<p>Students need experience working with addition and subtraction to solve word problems which include measures of length. It is important that word problems stay within the same unit of measure. Counting on and/or counting back on a number line will help tie this concept to previous knowledge. Some representations students can use include drawings, rulers, pictures, and/or physical objects. An interactive whiteboard or document camera may be used to help students develop and demonstrate their thinking.</p> <p>Equations include:</p> <ul style="list-style-type: none"> • $20 + 35 = c$ • $c - 20 = 35$ • $c - 35 = 20$ • $20 + b = 55$ • $35 + a = 55$ • $55 = a + 35$ • $55 = 20 + b$ <p>Example:</p> <ul style="list-style-type: none"> • A word problem for $5 - n = 2$ could be: Mary is making a dress. She has 5 yards of fabric. She uses some of the fabric and has 2 yards left. How many yards did Mary use? <p>There is a strong connection between this standard and demonstrating fluency of addition and subtraction facts. Addition facts through $10 + 10$ and the related subtraction facts should be included.</p>	<p>Language Arts: Create own word problems and make an interactive bulletin board.</p>

<p>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>Demonstrate partitioning and transitivity in relation to length.</p>	<p>Students represent their thinking when adding and subtracting within 100 by using a number line. An interactive whiteboard or document camera can be used to help students demonstrate their thinking.</p> <p>Example: $10 - 6 = 4$</p> 	
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**Math Curriculum
Grade Two**

Essential Question(s): How do we use time in our daily life?
How do we use money in our daily life?
21st Century Theme: Financial, Economic, Business, and Entrepreneurial Literacy
21st Century Skills: Critical Thinking and Problem Solving
Content: Measurement and Data
Standards: 2. MD
C. Work with time and money.
Vocabulary: Hour, minute, clock, digital clock, analog clock, dollar, quarter, dime, nickel, penny

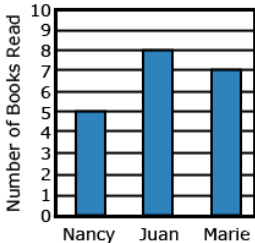
Skills	Instructional Procedures	Explanations and Examples	Interdisciplinary Connections
7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	<p>*Use A.M. and P.M. to write time.</p> <p>*Tell time to five minutes.</p>	<p>In first grade, students learned to tell time to the nearest hour and half-hour. Students build on this understanding in second grade by skip-counting by 5 to recognize 5-minute intervals on the clock. They need exposure to both digital and analog clocks. It is important that they can recognize time in both formats and communicate their understanding of time using both numbers and language. Common time phrases include the following: quarter till ____, quarter after ____, ten till ____, ten after ____, and half past ____.</p> <p>Students should understand that there are 2 cycles of 12 hours in a day - a.m. and p.m. Recording their daily actions in a journal would be helpful for making real-world connections and understanding the difference between these two cycles. An interactive whiteboard or document camera may be used to help students demonstrate their thinking.</p>	<p>Health: Create a time schedule of what the student does each day. Talk about how much time is spent sleeping.</p>
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>*If you have 2 dimes and 3 pennies, how many cents do you have?</p>	<p>Since money is not specifically addressed in kindergarten, first grade, or third grade, students should have multiple opportunities to identify, count, recognize, and use coins and bills in and out of context. They should also experience making equivalent amounts using both coins and bills. "Dollar bills" should include denominations up to one hundred (\$1.00, \$5.00, \$10.00, \$20.00, \$100.00).</p> <p>Students should solve story problems connecting the different representations. These representations may include objects, pictures, charts, tables, words, and/or numbers. Students should communicate their mathematical thinking and justify their answers. An interactive whiteboard or document camera may be used to help students demonstrate and justify their thinking.</p> <p>Example: Sandra went to the store and received \$ 0.76 in change. What are three different sets of coins she could have received?</p>	<p>Literature: If You Made a Million by: David M. Schwartz & Willow Morrow, 1994</p> <p>Language Arts: Role Play going to the store</p> <p>Social Studies: Discuss Consumers, goods & services</p>

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Grade Two**

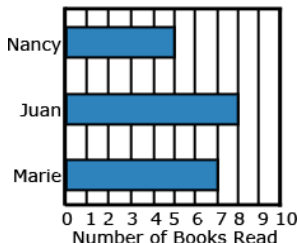
Essential Question(s): How do we pictorially represent data?											
21st Century Theme: Financial, Economic, Business, and Entrepreneurial Literacy											
21st Century Skills: Critical Thinking and Problem Solving											
Content: Measurement and Data											
Standards: 2. MD											
D. Represent and interpret data.											
Vocabulary: Picture graphs, bar graphs, line plot, horizontal, vertical											
Skills	Instructional Procedures	Explanations and Examples	Interdisciplinary Connections								
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.	*Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	<p>This standard emphasizes representing data using a line plot. Students will use the measurement skills learned in earlier standards to measure objects. Line plots are first introduced in this grade level. A line plot can be thought of as plotting data on a number line. An interactive whiteboard may be used to create and/or model line plots.</p> <p style="text-align: center;">Number of Pencils Measured</p>									
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 problems ¹ using information presented in a bar graph.	<p>*Solve simple put-together, take- apart, and compare problems using information presented in a bar graph.</p> <p>*Collect and organize data in different ways.</p>	<p>Students should draw both picture and bar graphs representing data that can be sorted up to four categories using single unit scales (e.g., scales should count by ones). The data should be used to solve put together, take-apart, and compare problems as listed in Table 1.</p> <p>In second grade, picture graphs (pictographs) include symbols that represent single units. Pictographs should include a title, categories, category label, key, and data.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;">Number of Books Read</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Nancy</td> <td style="text-align: center;">✧ ✧ ✧ ✧ ✧</td> </tr> <tr> <td style="text-align: center;">Juan</td> <td style="text-align: center;">✧ ✧ ✧ ✧ ✧ ✧ ✧ ✧</td> </tr> <tr> <td colspan="2" style="text-align: center;">✧ = 1 Book</td> </tr> </tbody> </table> <p>Second graders should draw both horizontal and vertical bar graphs. Bar graphs</p>	Number of Books Read		Nancy	✧ ✧ ✧ ✧ ✧	Juan	✧ ✧ ✧ ✧ ✧ ✧ ✧ ✧	✧ = 1 Book		Language Arts/ Science: Identify a science topic, create and write survey questions, then create graph of information to present to the class.
Number of Books Read											
Nancy	✧ ✧ ✧ ✧ ✧										
Juan	✧ ✧ ✧ ✧ ✧ ✧ ✧ ✧										
✧ = 1 Book											

include a title, scale, scale label, categories, category label, and data.


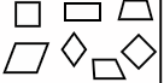

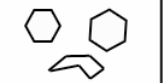
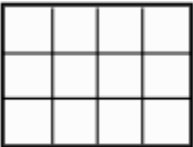
Books Read



Books Read



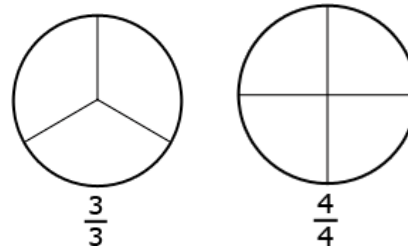
**Math Curriculum
Grade Two**

Essential Question(s): How do attributes help us to identify shapes?			
21st Century Theme: Global Awareness			
21st Century Skills: Communication and Collaboration, Critical Thinking and Problem Solving, Creativity and Innovation			
Content: Geometry			
Standards: 2.G			
A. Reason with shapes and their attributes.			
Vocabulary: Whole, fraction, half, third, fourth, same, like fractions, triangle, hexagon, quadrilaterals, pentagon, cubes, symmetry, plane shape, trapezoid, figure, rectangular prism, partition			
Skills	Instructional Procedures	Explanations and Examples	Interdisciplinary Connections
<p>1. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.¹ Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.</p>	<p>*Identify parts of lines and curves.</p> <p>*Identify, describe, sort and classify two-dimensional & three-dimensional shapes.</p> <p>*Identify triangles, quadrilaterals, pentagons, hexagons & cubes.</p>	<p>Students identify, describe, and draw triangles, quadrilaterals, pentagons, and hexagons. Pentagons, triangles, and hexagons should appear as both regular (equal sides and equal angles) and irregular. Students recognize all four sided shapes as quadrilaterals. Students use the vocabulary word “angle” in place of “corner” but they do not need to name angle types. Interactive whiteboards and document cameras may be used to help identify shapes and their attributes. Shapes should be presented in a variety of orientations and configurations.</p> <div style="display: flex; flex-wrap: wrap; justify-content: center;"> <div style="margin: 5px; border: 1px solid black; padding: 5px; text-align: center;"> <p>triangle</p>  </div> <div style="margin: 5px; border: 1px solid black; padding: 5px; text-align: center;"> <p>quadrilaterals</p>  </div> <div style="margin: 5px; border: 1px solid black; padding: 5px; text-align: center;"> <p>pentagons</p>  </div> <div style="margin: 5px; border: 1px solid black; padding: 5px; text-align: center;"> <p>hexagons</p>  </div> </div>	<p>Literature: Greedy Triangle by: Mariln Burns</p>
<p>2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.</p>	<p>*Compare and decompose two-dimensional shapes.</p> <p>*Develop foundations for understanding area.</p>	<p>This standard is a precursor to learning about the area of a rectangle and using arrays for multiplication. An interactive whiteboard or manipulatives such as square tiles, cubes, or other square shaped objects can be used to help students partition rectangles.</p> <p>Rows are horizontal and columns are vertical.</p> <div style="text-align: center;">  </div>	<p>Health: Have students cut rectangular healthy foods into rows and columns of the same size squares.</p>

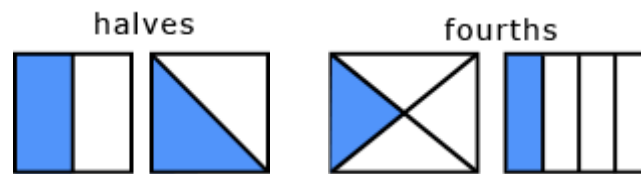
3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

- *Connect geometric concepts with unit fractions, halves, thirds, fourths.
- *Understand the relationship between a fraction and a whole.
- *Compare and order halves, thirds, fourths using bar models.

This standard introduces fractions in an area model. Students need experiences with different sizes, circles, and rectangles. For example, students should recognize that when they cut a circle into three equal pieces, each piece will equal one third of its original whole. In this case, students should describe the whole as three thirds. If a circle is cut into four equal pieces, each piece will equal one fourth of its original whole and the whole is described as four fourths.



Students should see circles and rectangles partitioned in multiple ways so they learn to recognize that equal shares can be different shapes within the same whole. An interactive whiteboard may be used to show partitions of shapes.



Same as above, but can also use foods that are circles and cut into fractions.

Course: Grade 2 Mathematics
Curriculum Map – Draft
Textbook: Math in Focus, Marshall Cavendish, 2010

Month	Chapter/Topic	Assessments
September	Chapter 1 – Numbers to 1000	Assessment Chapter 1
October	Chapter 2 – Addition to 1000 Chapter 3 – Subtraction to 1000	Assessment Chapter 2 Assessment Chapter 3
November	Chapter 4 – Bar Models for Addition and Subtraction Chapter 5 – Multiplication & Division	Assessment Chapter 4 Benchmark Chapters 1-4 Assessment Chapter 5
December	Chapter 6 – Mult. Tables of 2,5,10 Chapter 7 – Metric Measures of Length	Assessment Chapter 6 Benchmark Chapters 1-6 Assessment Chapter 7
January	Chapter 8 – Mass Chapter 9 – Volume	Assessment Chapter 8 Assessment Chapter 9 Benchmark Chapters 1-9
February	Chapter 10 – Mental Math & Estimation Chapter 11 – Money	Assessment Chapter 10 Assessment Chapter 11
March	Chapter 12 – Fractions Chapter 13 – Customary Units of Length	Assessment Chapter 12 Benchmark Chapters 10-12 Assessment Chapter 13
April	Chapter 14 – Time Chapter 15 – Multiplication by 3 and 4	Assessment Chapter 14 Benchmark Chapters 10-14

		Assessment Chapter 15
May	Chapter 16 – Bar Modeling with Mult. And Division Chapter 17 – Picture Graphs	Assessment Chapter 16 Assessment Chapter 17
June	Chapter 18 – Lines and Surfaces Chapter 19 – Shapes and Patterns	Assessment Chapter 18 Assessment Chapter 19 End of Year Assessment

09/2011