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| **2.OA.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.  **PA2.2.2.A.1:** Represent and solve problems involving addition and subtraction within 100.  When presented with a one-step or two-step word problems involving addition or subtraction within 100:  •Represent the problem with an addition or subtraction equation using a symbol (such as a blank or empty box or question mark) to represent the unknown value; and  •Use objects or drawings to model the problem and find the solution (i.e., the missing number).  NOTE: One-step word problems can be solved with a single computation. Two-step word problems are solved by performing one computation (addition or subtraction) and then another computation (addition or subtraction – can be the same or opposite operation).  Two-Step Problems: Because Second Graders are still developing proficiency with the most difficult subtypes: Add To/Start Unknown; Take From/Start Unknown; Compare/Bigger Unknown; and Compare/Smaller Unknown, two-step problems do not involve these sub-types (Common core Standards Writing Team, May 2011). Furthermore, most two-step problems should focus on  single-digit addends.  Second Graders use a range of methods, often mastering more complex strategies such as making tens and doubles and near doubles for problems involving addition and subtraction within 20. Moving beyond counting and counting-on, second grade students apply their understanding of place value to solve problems. |  | **2.OA.2:** Fluently add and subtract within 20 using mental strategies. (Note: See standard 1.OA.6 for a list of mental strategies). By end of Grade 2, know from memory all sums of two one-digit numbers.  **PA2.2.2.A.2:** Use mental strategies to add and subtract within 20.  Apply efficient strategies (especially mental strategies) to add and subtract within 20 with minimal hesitation (no counting strategies should be used).  • Recall from memory all sums of two one-digit numbers, after accumulating lots of experience with using mental strategies to add and subtract within 20.  Mental Strategies  • 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 – 9 = 1)  • Using the relationship between addition and subtraction (e.g., knowing that  8 + 4 = 12, one knows 12 – 8 = 4)  • Creating equivalent but easier or known sums (e.g., adding 6 + 7 by  creating the known equivalent 6 + 6 + 1 = 12 + 1 + 13)  Second Graders internalize facts and develop fluency by repeatedly using strategies that make sense to them. When students are able to demonstrate fluency they are accurate, efficient, and flexible. Students must have efficient strategies in order to know sums from memory.  Research indicates that teachers can best support students’ memory of the sums of two one-digit numbers through varied experiences including making 10, breaking numbers apart, and working on mental strategies. These strategies replace the use of repetitive timed tests in which students try to memorize operations as if there were not any relationships among the various facts. When teachers teach facts for automaticity, rather than memorization, they encourage students to think about the relationships among the facts.**(Fosnot** **&** **Dolk,** **2001)**  **It is no accident that the standard says “know from memory” rather than “memorize”. The first describes an outcome, whereas the second might be seen as describing a method of achieving that outcome. So no, the standards are not dictating times tests. (McCallum, October 2011)** |
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| **2.OA.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.  **PA 2.2.2.A.3:** Work with equal groups of objects to gain foundations for multiplication.  Prove that a group of objects (up to 20) has an odd or even number of members by:  -Sorting them into a rectangular array of two rows and seeing if both rows the same number of objects or if one row ends up with one more object than the other row;  - Making pairs of two until no objects remain or one object remains without a pair; and  -Counting the objects by twos until no objects remain or one object remains without a pair.  - After sorting an even number of objects into two rows with the same number of objects, write an equation to express the even number as being equal to the sum of the number of objects in each row (e.g., after sorting 12 objects into 2 rows of 6, the student writes 6 + 6 = 12, or 12 = 6 + 6).  Second graders apply their work with doubles to the concept of odd and even numbers. Students should have ample experiences exploring the concept that if a number can be decomposed (broken apart) into two equal addends or doubles addition facts (e.g., 10 = 5 +5), then that number (10 in this case) is an even number. Students should explore this concept with concrete objects (e.g., counters, cubes, etc.) before moving towards pictorial representations such as circles or arrays. |  | **2.OA.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.  **PA 2.2.2.A.3:** Work with equal groups of objects to gain foundations for multiplication.  Second graders use rectangular arrays to work with repeated addition, a building block for multiplication in third grade. A rectangular array is any arrangement of things in rows and columns, such as a rectangle of square tiles. Students explore this concept with concrete objects (e.g., counters, bears, square tiles, etc.) as well as pictorial representations on grid paper or other drawings. Due to the commutative property of addition, students can add either the rows or the columns and still arrive at the same solution.  • Find how many objects there are in a rectangular array  (no larger than 5-by-5) using addition strategies.  • Write an equation which expresses the repeated addition of the number of objects in each row. For example, for the following array, the student writes 4 + 4 + 4 = 12. |
| **2.NBT.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:  a. 100 can be thought of as a bundle of ten tens — called a “hundred.”  b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).  **PA2.1.2.B.1:** Use place value concepts to represent amounts of tens and ones and to compare three digit numbers.  • Represent three-digit numbers with manipulatives or drawings that consist of hundreds (such as hundred-mats), tens (such as ten-strips) and ones, and more importantly, the student automatically knows that the hundreds digit indicates how many hundred-mats (or other units of hundred) are needed, the tens digit indicates how many ten-strips (or other units of ten) are needed, and the ones digit indicates the remaining units that are needed. For example, these base-10 tiles represent 234.  •Verbalize the number of hundreds, tens and ones that represent three-digit numbers (e.g., for 234, the student says, “234 is composed of two hundreds, three tens and four ones.”).  As in First Grade, Second Graders’ understanding about hundreds also moves through several stages: Counting By Ones; Counting by Groups & Singles; and Counting by Hundreds, Tens and Ones. Counting By Ones: At first, even though Second Graders will have grouped objects into hundreds, tens and left-overs, they rely on counting all of the individual cubes by ones to determine the final amount. It is seen as the only way to determine how many.  Counting By Groups and Singles: While students are able to group objects into collections of hundreds, tens and ones and now tell how many groups of hundreds, tens and left-overs there are, they still rely on counting by ones to determine the final amount. They are unable to use the groups and left-overs to determine how many. |  | **2.NBT.2:** Count within 1000; skip-count by 5s, 10s, and 100s.  **PA2.1.2.B.2:** Use place value concepts to read, write and skip count to 1000.   Say the number names in sequences starting from any number within 1000;   Start from any multiple of 5 and skip-count by 5’s within 1000;   Start from any multiple of 10 and skip-count by 10’s within 1000; and   Start from any multiple of 100 and skip-count by 100’s within 1000.  Second Grade students count within 1,000. Thus, students “count on” from any number and say the next few numbers that come afterwards.  Example:  What are the next 3 numbers after 498? 499, 500, 501.  When you count back from 201, what are the first 3 numbers that you say? 200, 199, 198.  Second grade students also begin to work towards multiplication concepts as they skip count by 5s, by 10s, and by 100s. Although skip counting is not yet true multiplication because students don’t keep track of the number of groups they have counted, they can explain that when they count by 2s, 5s, and 10s they are counting groups of items with that amount in each group. |
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| **2.NBT.3:** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.  **PA2.1.2.B.2:** Use place value concepts to read, write and skip count to 1000.  Second graders read, write and represent a number of objects with a written numeral (number form or standard form). These representations can include snap cubes, place value (base 10) blocks, pictorial representations or other concrete materials. Please be cognizant that when reading and writing whole numbers, the word “and” should not be used (e.g., 235 is stated and written as “two hundred thirty-five). Expanded form (125 can be written as 100 + 20 + 5) is a valuable skill when students use place value strategies to add and subtract large numbers in 2.NBT.7.  When a number to 1000 in read aloud, given in numeral form, written in words, given in expanded form, or represented concretely with objects/counters:   Say the name of the number;   Write the number name in words; and   Express the number in expanded form (for example, 367 = 300 + 60 + 7) |  | **2.NBT.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.  **PA2.1.2.B.1:** Use place value concepts to represent amounts of tens and ones and to compare three digit numbers.  •Say which of two three-digit numbers is greater (or less) than the other by  - first looking at the hundreds digits of the two numbers:  - if the hundreds digits are different, the student says which is  greater (or less) without having to look at the other digits;  - if the hundreds digits are the same, the student compares the tens  digits next;  - next, looking at the tens digits of the two numbers:  - if the tens digits are different, the student says which is greater (or  less) without having to look at the ones digit;  - if the tens digits are the same, the student compares the ones  digits next;    - and finally (after seeing that the hundreds and tens digits are the same)  comparing the ones digits of the two numbers to say which number is  greater (or less) than the other.  •Write an equation or an inequality (with the < or > sign) to report the results of the comparison.  •Students should have ample experiences communicating their comparisons in words before using symbols. Students were introduced to the symbols greater than (>), less than (<) and equal to (=) in First Grade and continue to use them in  Second Grade with numbers within 1,000. |

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| **2.NBT.5:** Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.  **PA2.1.2.B.3:** Use place value understanding and properties of operations to add and subtract within 1000.  Students use their understanding of addition to develop fluency with addition and subtraction within 100. They solve problems within 1000 by applying their understanding of models for addition and subtraction, and they develop, discuss, and use efficient, accurate, and generalizable methods to compute sums and differences of whole numbers in base-ten notation, using their understanding of place value and the properties of operations. They select and accurately apply methods that are appropriate for the context and the numbers involved to mentally calculate sums and differences for numbers with only tens or only hundreds.  There are various strategies that Second Grade students understand and use when adding and subtracting within 100 (such as those listed in the standard). By using various strategies that make sense to the student, the student begins to internalize facts, thus becoming fluent. Therefore, when students are able to demonstrate fluency, they are accurate (answer correctly), efficient (within  4-5 seconds) and flexible (use strategies such as decomposing numbers to make ten). Students must have efficient strategies in order for facts to become fluent. |  | **2.NBT.6:** Add up to four two-digit numbers using strategies based on place value and properties of operations.  **PA2.1.2.B.3:** Use place value understanding and properties of operations to add and subtract within 1000.  Second Grade students add a string of two-digit numbers (up to four numbers) by applying place value strategies and properties of operations.  This DOES NOT require a standard algorithm. |
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| **2.NBT.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.  **PA2.1.2.B.3:** Use place value understanding and properties of operations to add and subtract within 1000.  This standard also references composing and decomposing a ten. This work should include strategies such as making a 10, making a 100, breaking apart a 10, or creating an easier problem. The standard algorithm of carrying or borrowing is not an expectation in Second Grade. Students are not expected to add and subtract whole numbers using standard algorithms until the end of Fourth Grade.  Use drawings to represent the strategy used, and use numbers/symbols and/or a written explanation to explain the reasoning behind the strategy that is used. |  | **2.NBT.8**: Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.  **PA2.2.2.A.2:** Use mental strategies to add and subtract within 20.  **PA2.1.2.B.3:** Use place value understanding and properties of operations to add and subtract within 1000.  For any given number from 100 to 900, mentally add 10 or 100 to that number and mentally subtract 10 or 100 from that number.  •Second Grade students mentally add or subtract either 10 or 100 to any number between 100 and 900. As teachers provide ample experiences for students to work with pre-grouped objects and facilitate discussion, second graders realize that when one adds or subtracts 10 or 100 that only the tens place or the digit in the hundreds place changes by 1. As the teacher facilitates opportunities for patterns to emerge and be discussed, students notice the patterns and connect the digit change with the amount changed. Opportunities to solve problems in which students cross hundreds are also provided once students have become comfortable adding and subtracting within the same hundred. |

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| **2.NBT.9:** Explain why addition and subtraction strategies work, using place value and the properties of operations. (Note: Explanations may be supported by drawings or objects.)  **PA2.1.2.B.3:** Use place value understanding and properties of operations to add and subtract within 1000.  Second graders explain why addition or subtraction strategies work as they apply their knowledge of place value and the properties of operations in their explanation. They may use drawings or objects to support their explanation.  Once students have had an opportunity to solve a problem, the teacher provides time for students to discuss their strategies and why they did or didn’t work.  •Example: There are 36 birds in the park. 25 more birds arrive. How many birds are there? Solve the problem and show your work.  **Student:** I broke 36 and 25 into tens and ones 30 + 6 + 20 + 5. I can change the order of my numbers, since it doesn’t change any amounts, so I added 30+ 20 and got 50. Then I added 5 and 5 to make10 and added it to the 50. So, 50 and 10 more is 60. I added the one that was left over and got on 6 to get 61. So there are 61 birds in the park.  •Example: One of your classmates solved the problem 56 - 34 = \_\_ by writing “I know that I need to add 2 to the number 4 to get 6. I also know that I need to add 20 to 30 to get 20 to get to 50. So, the answer is 22.” Is their strategy correct? Explain why or why not?  **Student:** I see what they did. Yes. I think the strategy is correct. They thought, ‘34 and what makes 56?’ So they thought about adding 2 to the 4 to get 6. Then, they had 36 and needed 56. So, they added 20 more. That means that they added 2 and 20 which is 22. I think that it’s right.  **2.MD.1**: Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.  **PA2.4.2.A.1:** Measure and estimate lengths in standard units using appropriate tools.  Measure and estimate lengths in standard units.  Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.  • Understand that larger units (e.g., yard) can be subdivided into equivalent units (e.g., inches) (partition).  • Understand that the same object or many objects of the same size such as paper clips can be repeatedly used to find the length of an object (iteration).  • Understand the relationship between the size of a unit and the number of units needed (compensatory principal). Thus, the smaller the unit, the more units it will take to measure the selected attribute.  When Second Grade students are provided with opportunities to create and use a variety of rulers, they can connect their understanding of non-standard units from First Grade to standard units in second grade. For example: By helping students progress from a “ruler” that is blocked off into colored units (no  numbers), to a “ruler” that has numbers along with the colored units,  to a “ruler” that has inches (centimeters) with and without numbers, students  develop the understanding that the numbers on a ruler do not count the individual marks but indicate the spaces (distance) between the marks. This is a critical understanding students need when using such tools as rulers, yardsticks, meter sticks, and measuring tapes.  •When given a choice of measuring tool, select the tool that is most appropriate for the task and can explain why he/she chose the tool. For example, to measure the length of the chalkboard, the student would choose the meter or yard stick over of a ruler (because the ruler is too small), but the best tool, if available, would be a retractable measuring tape (like the one carpenters use).  NOTE: Measurements should be kept to whole units and not ask for fractions of units. |  | **2.MD.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.  **PA2.4.2.A.1:** Measure and estimate lengths in standard units using appropriate tools.  •Measure the length of an object using one unit (such as a small paper clip) and then measure the same object using a different unit (such as a straw), and can describe how much more of the smaller unit is needed than the longer unit.  •Second Grade students measure an object using two units of different lengths. This experience helps students realize that the unit used is as important as the attribute being measured. This is a difficult concept for young children and will  require numerous experiences for students to predict, measure, and discuss outcomes. |
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| **2.MD.3**: Estimate lengths using units of inches, feet, centimeters, and meters.  **PA2.4.2.A.1:** Measure and estimate lengths in standard units using appropriate tools.  By the end of Second Grade, students will have also learned specific measurements as it relates to feet, yards and meters:  • There are 12 inches in a foot.  • There are 3 feet in a yard.  • There are 100 centimeters in a meter.  Second Grade students estimate the lengths of objects using inches, feet, centimeters, and meters prior to measuring. Estimation helps the students focus on the attribute being measured and the measuring process. As students estimate, the student has to consider the size of the unit- helping them to become more familiar with the unit size. In addition, estimation also creates a problem to be solved rather than a task to be completed. Once a student has made an estimate, the student then measures the object and reflects on the accuracy of the estimate made and considers this information for the next measurement.  NOTE: The ability to estimate with lengths should come as a result of lots of experience with actually measuring things and using real measuring tools. |  | **2.MD.4**: Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.  **PA2.4.2.A.1:** Measure and estimate lengths in standard units using appropriate tools.  •Measure two objects using the same units and then determine the difference in length.  •Second Grade students determine the difference in length between two objects by using the same tool and unit to measure both objects. Students choose two objects to measure, identify an appropriate tool and unit, measure both objects, and then determine the differences in lengths. |

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| **2.MD.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.  **PA2.4.2.A.6:** Extend the concepts of addition and subtraction to problems involving length.  •Solve word problems involving finding the total of given lengths.  •Solve word problems involving finding a missing length when the total length and other lengths are given.  •Use drawings to represent the strategy used, and use numbers/symbols and/or a written explanation to explain the reasoning behind the strategy that is used. |  | **2.MD.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.  **This does not have an equivalent PA CC standard.**  Building upon their experiences with open number lines, Second Grade students create number lines with evenly spaced points corresponding to the numbers to solve addition and subtraction problems to 100. They recognize the similarities between a number line and a ruler.    • Construct a number line that…  -Has equally spaced tick marks  -Starts from 0  -Has at least two tick marks number (usually the first tick mark and the last tick mark, although it is okay for all tick marks to be numbered).  •Represent any whole number as a distance on the number line. For example, the student can represent the number 3 as distance between 0 and 3, or 1 and 4 or 2 and 5, etc.  • Perform addition of whole numbers on the number line. For example, to add 28 + 17, the student might start at 28 on the number line, and then “jump” a 10 units  •Perform subtraction of whole numbers on the number line. For example, to subtract 32 – 8, the student might start at the number 32, and then count back 8 units; or the student might start at the number 8 and then count up to the number 32. |
| **2.MD.7**: Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.  **PA2.4.2.A.2:** Tell and write time to the nearest 5 minutes.  •Read the time displayed on a digital clock.  •Read the time displayed on an analog clock to the nearest 5 minutes.  •Use a.m. and p.m. when referring to a specific time of the day (e.g., I go to bed at 8:00 p.m.).  •Write the time in the standard format (e.g., for “seven thirty-five” the student writes 7:35).  Learning to tell time is challenging for children. In order to read an analog clock, they must be able to read a dial-type instrument. Furthermore, they must realize that the hour hand indicates broad, approximate time while the minute hand indicates the minutes in between each hour. As students experience clocks with only hour hands, they begin to realize that when the time is two o’clock, two-fifteen, or two forty-five, the hour hand looks different- but is still considered “two”. Discussing time as “about 2 o’clock”, “a little past 2 o’clock”, and “almost 3 o’clock” helps build vocabulary to use when introducing time to the nearest 5 minutes.  Screen shot 2012-05-10 at 6  All of these clocks indicate the hour of “two”, although they look slightly different. This is an important idea for students as they learn to tell time |  | **2.MD.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?  **PA2.4.2.A.3:** Solve problems using coins and paper currency.  In Second Grade, students solve word problems involving either dollars or cents. Since students have not been introduced to decimals, problems focus on whole dollar amounts or cents. This is the first time money is introduced formally as a standard. Therefore, students will need numerous experiences with coin recognition and values of coins before using coins to solve problems. Once students are solid with coin recognition and values, they can then begin using the values coins to count sets of coins, compare two sets of coins, make and recognize equivalent collections of coins (same amount but different arrangements), select coins for a given amount, and make change.  Solving problems with money can be a challenge for young children because it builds on prerequisite number and place value skills and concepts. Many times money is introduced before students have the necessary number sense to work with money successfully. For these values to make sense, students must have an understanding of 5, 10, and 25. More than that, they need to be able to think of these quantities without seeing countable objects… A child whose number concepts remain tied to counts of objects [one object is one count] is not going to be able to understand the value of coins. Van de Walle & Lovin, p. 150, 2006  •Determine the value of a set of coins and report the total in term of cents, using the ¢ symbol.  •Determine the value of a set of dollar bills and coins and report the total using $ and ¢ symbols.  As teachers provide students with sufficient opportunities to explore coin values (25 cents) and actual coins (2 dimes, 1 nickel), teachers will help guide students over time to learn how to mentally give each coin in a set a value, place the random set of coins in order, and use mental math, adding on to find differences, and skip counting to determine the final amount. |
| **2.MD.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.  **PA2.4.2.A.4:** Represent and interpret data using line plots, picture graphs, and bar graphs.  Second Graders use measurement data as they move through the statistical process of posing a question, collecting data, analyzing data, creating representations, and interpreting the results. In second grade students represent the length of several objects by making a line plot. Students should round their lengths to the nearest whole unit.  •Measure several objects (at least 10 objects is suggested) to the nearest whole unit, or  •Measure the same object several times (especially when the object is very long and could result in errors in the range of +/- 5 units) to the nearest whole unit; and then…  •Construct a line plot with:  -A horizontal axis with tick marks or numbers that are evenly spaced out;  -Enough tick marks or numbers to include the entire range of data;  -At least two tick marks numbered (usually, at least the first and last tick mark be numbered, but all tick marks can be numbered, or every other tick mark can be numbered);  -The axis labeled with a name and the unit of measurement; and  -X’s (or other symbol) that are a uniform size and vertically stacked uniformly. |  | **2.MD.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 using information presented in a bar graph.  **PA2.4.2.A.4:** Represent and interpret data using line plots, picture graphs, and bar graphs.  •For a data set with up to 4 categories, draw a picture graph (also known as a pictograph), with…  -A horizontal or vertical axis with the names of the categories labeled;  -A picture used to represent each data point and the picture is uniform in size and uniformly stacked; and  -A scale is provided to show what one picture represents.  •For a data set with up to 4 categories, the student can draw a bar graph with…  -A horizontal axis labeled with the names of the categories and a vertical axis with enough numbered tick marks to represent the frequency of data points for each category (or a vertical axis labeled with the names of the categories and a horizontal axis with tick marks to represent the frequency of data points for each category);  -Bars of uniform width drawn to the correct height/length to represent the frequency of data points for each category.  NOTE: At first, it may be difficult for 2nd graders to construct the graphs from scratch. A template may be provided to get them started. |

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| **2.G.1**: Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. (Note: Sizes are compared directly or visually, not compared by measuring.) Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.  **PA2.3.2.A.1:** Analyze and draw two-and three-dimensional shapes having specified attributes.  Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.  Second Grade students identify (recognize and name) shapes and draw shapes based on a given set of attributes. These include triangles, quadrilaterals (squares, rectangles, and trapezoids), pentagons, hexagons and cubes.  • Identify triangles, quadrilaterals, pentagons, and hexagons by counting the number of sides or number of angles.  • Recognize rectangles and squares by a description of its attributes (e.g., when asked to identify a shape with 4 equal sides and 4 equal angles, the student recognizes that it is a square).  • Identify a cube by recognizing its shape and knows that the cube has 6 faces that are squares of the same size.  • Recognize that “a three-dimensional shape that has six faces that are squares of equal size” is a cube, and can draw it.  • Draw the correct shape when told the number of angles or sides to draw, and then the student can also give the name of the shape. |  | **2.G.2:** Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.  **This does not have an equivalent PA CC standard.**  • When given a drawing of a rectangle, fill the rectangle with equal size squares (such as inch tiles), and then count the total number of squares that were needed.  NOTE: It is NOT the intent of this standard to introduce the term “area” or use a length X width formula to find the area.  Second graders partition a rectangle into squares (or square-like regions) and then determine the total number of squares. This work connects to the standard 2.OA.4 where students are arranging objects in an array of rows and columns. |

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| **2.G.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.  **PA2.3.2.A.2:** Use the understanding of fractions to partition shapes into halves, quarters, and thirds.  Second Grade students partition circles and rectangles into 2, 3 or 4 equal shares (regions). Students should be given ample experiences to explore this concept with paper strips and pictorial representations. Students should also work with the vocabulary terms halves, thirds, half of, third of, and fourth (or quarter) of. While students are working on this standard, teachers should help them to make the connection that a “whole” is composed of two halves, three thirds, or four fourths.  This standard also addresses the idea that equal shares of identical wholes may not have the same shape. |  |  |