Standards for Mathematical Practice in Second Grade

The Common Core State Standards for Mathematical Practice are practices expected to be integrated into every mathematics lesson for all students Grades K-12. Below are a few examples of how these Practices may be integrated into tasks that Grade 2 students complete.

Mathematical Practice	Explanations and Examples
1) Make Sense and Persevere in Solving Problems.	Mathematically proficient students in Second Grade examine problems and tasks, can make sense of the meaning of the task and find an entry point or a way to start the task. Second Grade students also develop a foundation for problem solving strategies and become independently proficient on using those strategies to solve new tasks. In Second Grade, students' work continues to use concrete manipulatives and pictorial representations as well as mental mathematics. Second Grade students also are expected to persevere while solving tasks; that is, if students reach a point in which they are stuck, they can reexamine the task in a different way and continue to solve the task. Lastly, mathematically proficient students complete a task by asking themselves the question, "Does my answer make sense?"
2) Reason abstractly and quantitatively.	Mathematically proficient students in Second Grade make sense of quantities and relationships while solving tasks. This involves two processes- decontexualizing and contextualizing. In Second Grade, students represent situations by decontextualizing tasks into numbers and symbols. For example, in the task, "There are 25 children in the cafeteria and they are joined by 17 more children. How many students are in the cafeteria? " Second Grade students translate that situation into an equation, such as: 25 + 17 = __ and then solve the problem. Students also contextualize situations during the problem solving process. For example, while solving the task above, students can refer to the context of the task to determine that they need to subtract 19 since 19 children leave. The processes of reasoning also other areas of mathematics such as determining the length of quantities when measuring with standard units.
3) Construct viable arguments and critique the reasoning of others.	Mathematically proficient students in Second Grade accurately use definitions and previously established solutions to construct viable arguments about mathematics. During discussions about problem solving strategies, students constructively critique the strategies and reasoning of their classmates. For example, while solving 74 - 18, students may use a variety of strategies, and after working on the task, can discuss and critique each others' reasoning and strategies, citing similarities and differences between strategies.
4) Model with mathematics.	Mathematically proficient students in Second Grade model real-life mathematical situations with a number sentence or an equation, and check to make sure that their equation accurately matches the problem context. Second Grade students use concrete manipulatives and pictorial representations to provide further explanation of the equation. Likewise, Second Grade students are able to create an appropriate problem situation from an equation. For example, students are expected to create a story problem for the equation 43 + 17 = ___ such as "There were 43 gumballs in the machine. Tom poured in 17 more gumballs. How many gumballs are now in the machine?"

5) Use appropriate tools strategically.	Mathematically proficient students in Second Grade have access to and use tools appropriately. These tools may include snap cubes, place value (base ten) blocks, hundreds number boards, number lines, rulers, and concrete geometric shapes (e.g., pattern blocks, 3-d solids). Students also have experiences with educational technologies, such as calculators and virtual manipulatives, which support conceptual understanding and higher-order thinking skills. During classroom instruction, students have access to various mathematical tools as well as paper, and determine which tools are the most appropriate to use. For example, while measuring the length of the hallway, students can explain why a yardstick is more appropriate to use than a ruler.
6) Attend to precision.	Mathematically proficient students in Second Grade are precise in their communication, calculations, and measurements. In all mathematical tasks, students in Second Grade communicate clearly, using grade-level appropriate vocabulary accurately as well as giving precise explanations and reasoning regarding their process of finding solutions. For example, while measuring an object, care is taken to line up the tool correctly in order to get an accurate measurement. During tasks involving number sense, students consider if their answer is reasonable and check their work to ensure the accuracy of solutions.
7) Look for and make use of structure.	Mathematically proficient students in Second Grade carefully look for patterns and structures in the number system and other areas of mathematics. For example, students notice number patterns within the tens place as they connect skip count by 10s off the decade to the corresponding numbers on a 100s chart. While working in the Numbers in Base Ten domain, students work with the idea that 10 ones equals a ten, and 10 tens equals 1 hundred. In addition, Second Grade students also make use of structure when they work with subtraction as missing addend problems, such as 50- 33 = __ can be written as 33+ __ = 50 and can be thought of as," How much more do I need to add to 33 to get to 50?"
8) Look for and express regularity in repeated reasoning.	Mathematically proficient students in Second Grade begin to look for regularity in problem structures when solving mathematical tasks. For example, after solving two digit addition problems by decomposing numbers (33+ 25 = 30 + 20 + 3 +5), students may begin to generalize and frequently apply that strategy independently on future tasks. Further, students begin to look for strategies to be more efficient in computations, including doubles strategies and making a ten. Lastly, while solving all tasks, Second Grade students accurately check for the reasonableness of their solutions during and after completing the task.

Grade 2 Critical Areas

The Critical Areas are designed to bring focus to the standards at each grade by describing the big ideas that educators can use to build their curriculum and to guide instruction.

The Critical Areas for Second Grade can be found on page 17 in the *Common Core State Standards for Mathematics*.

1. Extending understanding of base-ten notation

Students extend their understanding of the base-ten system. This includes ideas of counting in fives, tens, and multiples of
hundreds, tens, and ones, as well as number relationships involving these units, including comparing. Students understand
multi-digit numbers (up to 1000) written in base-ten notation, recognizing that the digits in each place represent amounts of thousands, hundreds, tens, or ones (e.g., 853 is 8 hundreds + 5 tens + 3 ones).

2. Building fluency with addition and subtraction.

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.

3. Using standard units of measure.

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.

4. Describing and analyzing shapes.

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.

Operations and Algebraic Thinking

• Represent and solve problems involving addition and subtraction.

Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of putting together, taking apart, and comparing, with unknowns in all positions*, e.g., by using drawings and for the unknown number to represent the problem.*

Student Friendly/"I Can" statements	Resources	A
1. Identify the unknown in an addition or subtraction word problem 2. Write an addition and subtraction equation with a symbol for the unknown 3. Use drawings or equations to represent one- and two-step word problems 4. Add and subtract within 100 to solve one-step word problems with unknowns in all positions 5. Add and subtract within 100 to solve two-step word problems with unknowns in all positions 6. Determine operation needed to solve addition and subtraction problems in situations including add to, take from, put together, take apart, and compare	http://nlvm.usu.edu	

• Add and subtract within 20.

Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sum
numbers.

Student Friendly/"I Can" statements	Resources	A
1. Know mental strategies for addition and subtraction 2. Know from memory all sums of two one-digit numbers 3. Apply mental strategies to add and subtract fluently within 20.	http://nlvm.usu.edu	

• Work with equal groups of objects to gain foundations for multiplication.

Determine whether a group of objects (up to 20) has an odd or even number of members, *e.g., by pairing by 2s*; write an equation to express an even number as a sum of two equal addends.

Student Friendly/"I Can" statements	Resources	A
1. Count a group of objects up to 20 by 2s. 2. Recognize in groups that have even numbers objects will pair up evenly. 3. Recognize in groups of odd numbers objects will not pair up evenly. 4. Determine whether a group of objects is odd or even, using a variety of strategies. 5. Generalize the fact that all even numbers can be formed from the addition of 2 equal addends. 6. Write an equation to express a given even number as a sum of two equal addends.	http://nlvm.usu.edu	

Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to equation to express the total as a sum of equal addends.

Student Friendly/"I Can" statements	Resources	A
1. Write an equation with repeated equal addends from an array. 2. Generalize the fact that arrays can be written as repeated addition problems. 3. Solve repeated addition problems to find the number of objects using rectangular arrays.		

Number and Operations in Base Ten

• Understand place value.

Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e
hundreds, 0 tens, and 6 ones.

Student Friendly/"I Can" statements	Resources	A
1. Identify the ones, tens, and hundreds place. 2. Regroup ten ones into the tens places value. 3. Regroup ten tens into the hundreds place value. 4. Explain the value of each digit in a 3-digit number.	http://nlvm.usu.edu	

Understand the following as special cases:

a. 100 can be thought of as a bundle of ten tens — called a "hundred."

Student Friendly/"I Can" statements	Resources	A
1. Identify a bundle of 10 tens as a "hundred."		

b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, e
(and 0 tens and 0 ones).

Student Friendly/"I Can" statements	Resources	A
1. Represents a three digit number with hundreds, tens, and ones. 2. Represent 200, 300, 400, 500, 600, 700, 800, 900 with one, two, three, four, five, six, seven, eight, or nine hundreds and 0 tens and 0 ones		

Count within 1000; skip-count by 5s, 10s, and 100s

Student Friendly/"I Can" statements	Resources	A
1. Count to 1000 by hundreds. 2. Count to 1000 by tens. 3. Count to 1000 by fives.		

Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Student Friendly/"I Can" statements	Resources	A
1. Know what expanded form means. 2. Recognize that the digits in each place represent amounts of thousands, hundreds, tens, or ones. 3. Read numbers to 1000 using base ten numerals. 4. Write numbers to 1000 using base ten numerals. 5. Read numbers to 1000 using number names. 6. Write numbers to 1000 using number names. 7. Read numbers to 1000 using expanded form. 8. Write numbers to 1000 using expanded form.		

Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, an
results of comparisons.

Student Friendly/"I Can" statements	Resources	A
1. Understand the meaning of the hundreds, tens, and ones place values. 2. Identify the meaning of comparison symbols, >, < or =. 3. Record comparisons of numbers up to three digits using the appropriate symbol. 4. Compare two three-digit numbers based on place value of each digit.		

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

Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/o
between addition and subtraction.

Student Friendly/"I Can" statements	Resources	A
1. Know strategies for adding and subtracting based on place value. 2. Know strategies for adding and subtracting based on properties of operations. 3. Know strategies for adding and subtracting based on the relationship between addition and subtraction. 4. Choose a strategy (place value, properties of operations, and /or the relationship between addition and subtraction) to fluently add and subtract within 100.	http://nlvm.usu.edu	

Add up to four two-digit numbers using strategies based on place value and properties of operations.

Student Friendly/"I Can" statements	Resources	A
1. Know strategies for adding two digit numbers based on place value and properties of operations. 2. Use strategies to add up to four two-digit numbers.		

Add and subtract within 1000, using concrete models or drawings and strategies based on place value, pro
and/or the relationship between addition and subtraction; relate the strategy to a written method. Unders
subtracting three digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and or
necessary to compose or decompose tens or hundreds.

Student Friendly/"I Can" statements	Resources	A
1. Understand place value within 1000. 2. Decompose any number within 1000 into hundred(s), ten(s), and one(s). 3. Choose an appropriate strategy for solving an addition or subtraction problem within 1000. 4. Relate the chosen strategy (using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction) to a written method (equation) and explain the reasoning used. 5. Use composition and decomposition of hundreds and tens when necessary to add and subtract within 1000.		

Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number

Student Friendly/"I Can" statements	Resources	A
1. Know place value within 1000. 2. Apply knowledge of place value to mentally add or subtract 10 or 100 to/from a given number 100-900.		

Explain why addition and subtraction strategies work, using place value and the properties of operations.

Student Friendly/"I Can" statements	Resources	A
1. Know addition and subtraction strategies using place value and properties of operations related to addition and subtraction. 2. Explain why addition and subtraction strategies based on place value and properties of operations work.		

Measurement and Data

• Measure and estimate lengths in standard units.

Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter s
tapes.

Student Friendly/"I Can" statements	Resources	A
1. Identify tools that can be used to measure length. 2. Identify the unit of length for the tool used (inches, centimeters, feet, meters). 3. Determine which tool to use to measure the length of an object. 4. Measure the length of objects by using appropriate tools.	http://nlvm.usu.edu	

Measure the length of an object twice, using length units of different lengths for the two measurements; d
measurements relate to the size of the unit chosen.

Student Friendly/"I Can" statements	Resources	A
1. Know how to measure the length of objects with different units. 2. Compare measurements of an object taken with two different units. 3. Describe why the measurements of an object taken with two different units are different. 4. Explain the length of an object in relation to the size of the units used to measure it.		

Estimate lengths using units of inches, feet, centimeters, and meters.

Student Friendly/"I Can" statements	Resources	A
1. Know strategies for estimating length. 2. Recognize the size of inches, feet, centimeters, and meters. 3. Estimate lengths in units of inches, feet, centimeters, and meters. 4. Determine if estimate is reasonable.		

Measure to determine how much longer one object is than another, expressing the length difference in te unit.

Student Friendly/"I Can" statements	Resources	A
1. Name standard length units. 2. Compare lengths of two objects. 3. Determine how much longer one object is than another in standard length units.		

• Relate addition and subtraction to length.

Use addition and subtraction within 100 to solve word problems involving lengths that are given in the sam *drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent th*

Student Friendly/"I Can" statements	Resources	A
1. Add and subtract lengths within 100. 2. Solve word problems involving lengths that are given in the same units. 3. Solve word problems involving length that have equations with a symbol for the unknown number.	http://nlvm.usu.edu	

Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresp
1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

Student Friendly/"I Can" statements	Resources	A
1. Represent whole numbers from 0 on a number line with equally spaced points. 2. Explain length as the distance between zero and another mark on the number line diagram. 3. Use a number line to represent the solution of whole-number sums and differences related to length within 100.		

• Work with time and money.

Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.

Student Friendly/"I Can" statements	Resources	A
1. Tell time using analog clocks to the nearest 5 minutes 2. Tell time using digital clocks to the nearest 5 minutes 3. Write time using analog clocks and digital clocks 4. Identify the hour and minute hand on an analog clock 5. Identify and label when a.m. and p.m. occur 6. Determine what time is represented by the combination of the number on the clock face and the position of the hands.	http://nlvm.usu.edu Touch math money Everyday Math Study Island	

Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols app
you have 2 dimes and 3 pennies, how many cents do you have?

Student Friendly/"I Can" statements	Resources	A
1. Identify and recognize the value of dollar bills, quarters, dimes, nickels, and pennies. 2. Identify the $ and ¢ symbol. 3. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies using $ and ¢ symbols appropriately.		

• Represent and interpret data objects and count the number of objects in categories.

Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by maki
measurements of the same object. Show the measurements by making a line plot, where the horizontal sc
number units.

Student Friendly/"I Can" statements	Resources	A
1. Read tools of measurement to the nearest unit. 2. Represent measurement data on a line plot. 3. Measure lengths of several objects to the nearest whole unit. 4. Measure lengths of objects by making repeated measurements of the same object. 5. Create a line plot with a horizontal scale marked in whole numbers using measurements.	http://nlvm.usu.edu	

Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four catego
together, take-apart, and compare problems4 using information presented in a bar graph.

Student Friendly/"I Can" statements	Resources	A
1. Recognize and Identify picture graphs and bar graphs. 2. Identify and label the components of a picture graph and bar graph. 3. Solve problems relating to data in graphs by using addition and subtraction 4. Make comparisons between categories in the graph using more than, less than, etc. 5. Draw a single-unit scale picture graph to represent a given set of data with up to four categories 6. Draw a single-unit scale bar graph to represent a given set of data with up to four categories		

Geometry

• Reason with shapes and their attributes.

Recognize and draw shapes having specified attributes, such as a given number of angles or a given numb
triangles, quadrilaterals, pentagons, hexagons, and cubes.

Student Friendly/"I Can" statements	Resources	A
1. Identify the attributes of triangles, quadrilaterals, pentagons, hexagons, and cubes (e.g. faces, angles, sides, vertices, etc). 2. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes based on the given attributes. 3. Describe and analyze shapes by examining their sides and angles, not by measuring. 4. Compare shapes by their attributes (e.g. faces, angles). 5. Draw shapes with specified attributes	http://nlvm.usu.edu	

Partition a rectangle into rows and columns of same-size squares and count to find the total number of the

Student Friendly/"I Can" statements	Resources	A
1. Counts to find the total number of same-size squares. 2. Defines partition. 3. Identify a row. 4. Identify a column. 5. Determines how to partition a rectangle into same-size squares.		

Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *h*
third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares
not have the same shape.

Student Friendly/"I Can" statements	Resources	A
1. Identify two , three and four equal shares of a whole 2. Describe equal shares using vocabulary: halves, thirds, fourths half of, third of etc. 3. Describe the whole as two halves , three thirds, or four fourths 4. Justify why equal shares of identical		

wholes need not have the same shape.		