Mississippi College and Career Readiness Standards for Mathematics Scaffolding Document

Grade 2

GRADE 2

Operations and Algebraic Thinking

Represent and solve problems involving addition and subtraction

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.	Desired Student Performance		
	A student should know	A student should understand	A student should be able to do
	• Know what the symbols <, >, =, +, - mean. • Add and subtract. • Find unknowns with single-digit addition and subtraction. • Compare numbers. • Make numbers equal. • Modeling equations with drawings. • Solve one-step word problems. • Use part and whole relationships.	• Joining parts to make a whole is one interpretation of addition. • Subtraction number sentences can be used to show separating parts from a whole or comparison subtraction situations. • Addition and subtraction have an inverse relationship. • How to model draw a situation. • How to write an equation for a situation. The answer to one problem or question is needed to find the answer to another problem or question.	• Model addition of numbers within 100 with objects/pictures. • Model subtraction of numbers within 100 with objects/pictures. • Add two numbers within 100 using equations with/symbols or variable for the unknown. • Subtract two numbers within 100 using equations with/symbols or variable for the unknown. • Solve one- and two-step word problems and compare numbers to find the unknown. • Create addition/subtraction with 100 using objects/pictures.

GRADE 2

Operations and Algebraic Thinking

Represent and solve problems involving addition and subtraction

2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2 know from memory all sums of two one-digit numbers.	Desired Student Performance		
	A student should know	A student should understand	A student should be able to do
	• Use mental strategies for adding and subtracting. • Use part-whole relationships. • Add and subtract fluently within 10.	• How compensation works. • Addition and subtraction using place value. • Ten 1s makes a bundle called a 10.	• Add fluently within 20 using mental strategies. • Subtract fluently within 20 using mental strategies. • Memorize the sums of one-digit numbers. • Find sums by making 10 when adding.

GRADE 2

Operations and Algebraic Thinking

Represent and solve problems involving addition and subtraction

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 2's; write an equation to express an even number as a sum of two equal addends.	Desired Student Performance		
	A student should know	**A student should understand**	**A student should be able to do**
	• Write an equation or number sentence. • Add numbers to 20.	• Some numbers can be divided into two equal parts (even numbers) and some cannot (odd numbers). • Even numbers, when modeled, will each have a pair. • Odd numbers, when modeled, will have one object without a pair.	• Tell if a number is even or odd. • Count by twos. • Determine if a group of objects is even or odd. • Create an equation that shows an even number as a sum of doubles.

GRADE 2
Operations and Algebraic Thinking

Represent and solve problems involving addition and subtraction

2.OA.4	Desired Student Performance		
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.	**A student should know**	**A student should understand**	**A student should be able to do**
	• Use repeated addition to count groups. Using a model to represent addition of whole numbers. • Use a model to represent addition of whole numbers.	• Repeated addition involves joining equal groups. • An array involves joining equal groups and is one way to think about repeated addition. • Information in a problem can often be shown using a diagram and used to solve the problem.	• Model addition to write number sentences. • Build arrays to model repeated addition. • Use addition to solve problems.

GRADE 2
Numbers and Operation in Base Ten

Understand place value

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).	Desired Student Performance		
	A student should know	**A student should understand**	**A student should be able to do**
	• Model place value of ones, tens, and hundreds. Recognize the value of a digit. • Use two-digit numbers represent tens and ones. • Make a bundle of 10 ones. • Know the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens and 0 ones.	• Ten ones is equal to 1 ten. • A bundle of 10 tens equals a hundred. • Place value is foundational to all other mathematics. • Place value shows the value of digits.	• Read a three-digit number. • Understand the values in each place of the three-digit number. • Create a three-digit number using place-value models. • Exchange ten tens for a hundred.

GRADE 2

Numbers and Operation in Base Ten

Understand place value

2.NBT.2	Desired Student Performance		
Count within 1000; skip-count by 5s starting at any number ending in 5 or 0. Skip-count by 10s, and 100s starting at any number.	**A student should know**	**A student should understand**	**A student should be able to do**
	• Find numbers that are a given number more than or less than a number helps to understand the size and order of numbers. • Count to 120. • Counting to nickels. • Counting to dimes.	• Skip counting is a predictable pattern of counting. • Skip counting is a repeated pattern. • How to use or create a number line or chart to model skip counting. When counting by a number, you don't say the numbers in between. • Counting and place-value patterns can be seen on a hundreds charts. • Skip counting by 10's will affect the tens place. • Skip counting by 100's will affect the hundreds place.	• Use a hundreds chart to help describe the position of a number in relation to another number. • Identify and apply number patterns. • Identify the number that comes next in a given pattern. • Solve problems by finding number patterns. • Continue a skip counting pattern.

GRADE 2

Numbers and Operation in Base Ten

Understand place value

2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	Desired Student Performance		
	A student should know	A student should understand	A student should be able to do
	• Know numbers greater than 20 use a hyphen when written out in word form (e.g., twenty-one). • Use the place-value system. • Read and write numerals to 120.	• Numbers can be used to tell how many. • Some numbers can be written by joining number words. • The relationship between base ten and place value. • Expanded form is based on breaking the number down by place value. • A number can be written in multiple ways, but have the same value.	• Read and write number words for numbers 0–1000. • Identify and record three-digit numbers in expanded form, standard form, and number word form. • Model three-digit numbers using base ten.

GRADE 2
Numbers and Operation in Base Ten

Understand place value

2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, < symbols to record the results of comparisons.	Desired Student Performance		
	A student should know	A student should understand	A student should be able to do
	• Comparing two-digit numbers. • Counting to 120	• Place value can be used to compare and order numbers. • Comparing numbers is similar to ordering numbers. • The symbols <, >, and = are used to compare two numbers.	• Compare numbers with the symbols <, >, or =. • Order numbers from least to greatest and greatest to least. • Use place value to compare numbers.

GRADE 2

Numbers and Operation in Base Ten

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

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.	**Desired Student Performance**		
	A student should know	**A student should understand**	**A student should be able to do**
	• Combine for addition. • Take away for subtraction. • Use properties of operations. • Use a hundreds chart. • Add within 100. • How to choose the method in which you will solve a problem. • Solve using the traditional algorithm. • Use vertical/place value addition. • Use horizontal addition. • Mentally find 10 more and 10 less.	• The place value number system. • Adding tens is similar to adding ones. • Two-digit numbers can be broken apart using tens and ones and added in different ways. • Patterns on a hundreds chart. • Subtracting groups of tens is similar to subtracting numbers less than 10. • Ten ones can be regrouped for 1 ten. • One ten can be regrouped for 10 ones. • Sums and differences can be found using models, mental math or paper and pencil.	• Identify and write numbers that are 10 more and 10 less than given numbers. • Mentally add a one-digit number to a two-digit number. • Use models and algorithms for addition and subtraction. • Use mental math to add a two-digit number to a two-digit number. • Find the missing part of numbers within 100 by "counting on" from the given part. • Regroup 1 ten as 10 ones when subtracting. • Regroup 10 ones as a ten.

GRADE 2
Numbers and Operation in Base Ten

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

2.NBT.6 **Add up to four two-digit numbers using strategies based on place value and properties of operations.**	Desired Student Performance		
	A student should know	**A student should understand**	**A student should be able to do**
	• Know basic addition facts. • Use knowledge of place-value concepts. • Use the commutative (order) and associative (grouped) properties. • Model addition. • Regroup.	• Three- and four two-digit numbers can be grouped and added in any order. • Addition means combining numbers. • The value of digits change depending on what place they are in.	• Add 2 two-digit whole numbers • Add 3 two-digit whole numbers • Add 4 two-digit whole numbers

GRADE 2

Numbers and Operation in Base Ten

Use place value understanding and properties off operations to add and subtract

2.NBT.7	Desired Student Performance		
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.	**A student should know**	**A student should understand**	**A student should be able to do**
	• Understand the connection between addition and subtraction to help master subtraction facts and develop mental math strategies. • Use place-value addition and subtraction. • Use concrete models. • Model drawing. • Adding within 100. • Composing and decomposing numbers.	• There are a variety of ways to add and subtract. • There is more than one way to do a calculation. • The properties of operations. • Adding and subtracting are opposites. • The process of composing and decomposing numbers. • That each digit has a value. • How models can be used to show patterns in sums. 5 + 3, 50 + 30, and 500 + 300.	• Use a strategy to add three-digit numbers—model, algorithm. • Find the missing part of a given quantity and one of its parts by counting on or counting back. • Write and solve an equation that is modeled. • Model an equation that is written. • Add and Subtract three-digit numbers by using an algorithm that is connected to a model or other strategy.

GRADE 2
Numbers and Operation in Base Ten

Understand place value understanding and properties of operations to add and subtract

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.	**Desired Student Performance**		
	A student should know	**A student should understand**	**A student should be able to do**
	• Know basic facts and place-value concepts are used to find the sums and differences for groups of tens and hundreds mentally**.** • Mentally add and subtract single-digit numbers. • Find 10 more or 10 less than a number mentally.	• Adding or subtracting hundreds or tens is similar to adding or subtracting single-digit numbers. • When the place value is 0, the number being added to or subtracted from will stay the same. • . Adding or subtracting 10 from a number, the ones digit stays the same. • Adding or subtracting 100 to a number, the tens and ones stay the same.	• Add and subtract 10 and 100 to and from two-digit numbers using mental math. • Add and subtract 10 or 100 to and from three-digit numbers using mental math.

GRADE 2

Numbers and Operation in Base Ten

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

2.NBT.9 **Explain why addition and subtraction strategies work, using place value and the properties of operations.**	**Desired Student Performance**		
	A student should know	**A student should understand**	**A student should be able to do**
	• Use the base-ten system using 10 ones to regroup for a ten, 10 tens to regroup for a hundred. • Use place value to show regrouping actually involves an exchange of objects. • Use properties of operations.	• The properties for operations. • The place-value system. • Addition and subtraction are opposites. • Composing and decomposing numbers.	• Use models to add and subtract using place value and explain the process of composing and decomposing numbers with and without regrouping. • Use pictures to add and subtract using place value and explain the process of composing and decomposing numbers with and without regrouping. • Use algorithms to add and subtract using place value and explain the process of composing and decomposing numbers with and without regrouping.

GRADE 2

MEASUREMENT AND DATA

Measure and estimate lengths in standard units

2.MD.1 **Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.**	**Desired Student Performance**		
	A student should know	**A student should understand**	**A student should be able to do**
	• Identify an attribute, such as length or weight, of the object being measured. • How to count the number of units contained in the object to be measured. • How to line up the item to be measured with a ruler on the zero. • How to measure in whole number lengths.	• The length of objects is measurable. • A standard unit, such as an inch or centimeter, is always the same length. • The length spans from one end of an object to the other. • Measurement is the iteration of a unit. • How to read a ruler is similar to a number line	• Measure different lengths. • Measure using different tools. • Choose the appropriate tool for measurement. • Measure items in different units. • Measure accurately and reasonably quickly.

GRADE 2

MEASUREMENT AND DATA

Measure and estimate lengths in standard 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.	Desired Student Performance		
	A student should know	**A student should understand**	**A student should be able to do**
	- Measure length. - Measure using different units. - How to discuss differences in length and units.	- Measurement is a process of comparing a unit to the object being measured. - The length of any object can be used as a measurement unit for length. - Objects can be measured using more than one unit. - Use different units to measure objects. - The longer an object is the greater the number of units there will be. - The smaller the unit is the greater number of units there will be.	- Measure the same object with different units. - Discuss the similarities and differences in the measurements. - Discuss how the different lengths of objects compare to the different units of measure.

GRADE 2

MEASUREMENT AND DATA

Measure and estimate lengths in standard units

2.MD.3 **Estimate lengths using units of inches, feet, centimeters, and meters**.	Desired Student Performance		
	A student should know	**A student should understand**	**A student should be able to do**
	• Measure in whole numbers. • Compare the lengths of two objects. • The approximate size of inches, feet, centimeters, and meters.	• "Estimate" is the word used that means "about" or "an educated guess." • When you don't have a tool to measure exact length, you can estimate. • You can use objects similar to units of measurement to make estimates (e.g., thumb). • A process of estimation and why it is useful.	• Estimate and measure lengths using units of inches or feet. centimeters, and meters. • Estimate using objects similar to units for measurement. • Measure using appropriate tools after they estimate and compare.

GRADE 2

MEASUREMENT AND DATA

Measure and estimate lengths in standard units

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.	Desired Student Performance		
	A student should know	**A student should understand**	**A student should be able to do**
	• Subtract numbers. • Measure. • Count up to find the difference. • Compare lengths indirectly, using a third object.	• The length of two objects can be compared. • The length of two objects can be measured visually. • When measuring two objects, measure both objects in the same unit to determine difference in length unit.	• Determine which length is longer. • Determine which length is shorter. • Measure to compare length and express the length difference in a standard length unit. • Determine the differences in measurement.

GRADE 2

MEASUREMENT AND DATA

Related addition and subtraction to length

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.	Desired Student Performance		
	A student should know	**A student should understand**	**A student should be able to do**
	• Use regrouping. • Add and subtract one and two digit numbers. • Compare numbers based on the number of tens and ones. • Solve word problems.	• Measurements in the same unit can be added or subtracted in the same way as adding and subtracting whole numbers. • The unit needs to be written with the sum or difference. • Adding is similar to continuing iteration. • When you have a missing number in an equation, you can use a symbol.	• Use addition and subtraction to solve measurement word problems. • Use drawings to model word problems. • Use symbols for "unknowns," when writing equations for word problems.

GRADE 2
MEASUREMENT AND DATA

Relate addition and subtraction to length

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.	Desired Student Performance		
	A student should know	**A student should understand**	**A student should be able to do**
	• How to model addition on a number line. • How to model subtraction on a number line. • Count to 100. • Addition and subtraction.	• Sums can be represented as lengths on a number line. • Differences can be represented as lengths on a number line. • Number lines can be models or diagrams of addition and subtraction.	• Use a number line to model one- and two-digit addition. • Use a number line to model one- and two-digit subtraction.

GRADE 2

MEASUREMENT AND DATA

Work with time and money

2.MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	Desired Student Performance		
	A student should know	**A student should understand**	**A student should be able to do**
	• Counting by 5s. • How to count on from a given number. • Count on from a given number by 5s. • Count nickels. • Tell and write time in hours and half hours on an analog and digital clock.	• Time can be given to the nearest 5 minutes. • Time can be expressed before or after the hour. • Numerals on an analog clock face are in increments of 5 minutes. • The long hand represents the minute on an analog clock. • On a digital clock, the number to the left of the colon is the hour; the one to the right of the colon is the minute. • A.M. is before noon. • P.M. is after noon	• Tell and write time from a digital and/or analog clock. • Write the time to the nearest 5 minutes and use a.m. or p.m.

GRADE 2

MEASUREMENT AND DATA

Work with time and money

2.MD.8a **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?**	**Desired Student Performance**		
	A student should know	**A student should understand**	**A student should be able to do**
	• Adding two-digit numbers is the same as adding cents except for cent symbol or the decimal and dollar sign. • Subtracting two-digit numbers is the same as subtracting cents except for adding either the cent symbol or dollar sign and decimal point. • Identify the value of all U.S. coins. • Count U.S. coins up to $1.00.	• Each coin has a unique value. • The size of the coin does not indicate its value. • The same amount of money can be represented using different combinations of coins and bills. • The relationship between place value and money.	• Identify the value of dollar bills and coins. • Add and subtract coins and bills to find the total value. • Add and subtract different values of coins together. • Solve word problems using money.

GRADE 2

MEASUREMENT AND DATA

Work with time and money

2.MD.8b Fluently use a calendar to answer simple real world problems such as "How many weeks are in a year?" or "James gets $5 allowance every 2 months, how much money will he have at the end of each year?"	Desired Student Performance		
	A student should know	A student should understand	A student should be able to do
	• Know there are 7 days in a week. • Know the names of the days of the week. • Identify the days of the week on a calendar. • Identify the number of weeks in each month. • Know the names of the months.	• Not every month has the same number of weeks. • Not every month has the same number of days. • A week doesn't always begin on Sunday.	• Answer recall questions about increments of time on a calendar. • Use a calendar to solve word problems.

GRADE 2
MEASUREMENT AND DATA
Represent and interpret data

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.**	**Desired Student Performance**		
	A student should know	**A student should understand**	**A student should be able to do**
	• Organize data.	• A line plot can be used as a visual representation of the relative lengths of objects. • A table is one way to organize data. • The objects that are the longest are farthest right on the line plot. • The objects that are the shortest in length are the least value on the line plot. • How to organize a line plot.	• How to measure objects. • Make a line plot. • How to graph on a line plot.

GRADE 2
MEASUREMENT AND DATA

Represent and interpret data

2.MD.10	Desired Student Performance		
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.	**A student should know** • Making graphs provides an opportunity to count, compare, add, subtract, sequence, and classify data. • Drawing a model to represent a situation. • Adding and subtracting.	**A student should understand** • Data can be organized in different ways. • The type of data can determine the best graph to be used to represent it. • Picture graphs and bar graphs make it easy to compare data. • A symbol represents the data. • Graphs can represent numerical data.	**A student should be able to do** • Represent a set of data in a picture graph and in a bar graph. • Draw and use pictographs to solve problems. • Solve simple addition and subtraction problems regarding the graph data. • Solve comparison problems regarding the graph data.

GRADE 2			
Geometry			
Reason with shapes and their attributes			
2.G.1 **Recognize and draw shapes having specified attributes, such as given number of angles or given number of equal faces.⁵ Identify quadrilaterals, pentagons, hexagons, and cubes.** ⁵ Sizes are compared directly or visually, not compared by measuring.	**Desired Student Performance**		
	A student should know	**A student should understand**	**A student should be able to**
	• Know the names and faces of objects (e.g. rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles). • Know the names of three-dimensional shapes (e.g., cubes, right rectangular prisms, circular cones, circular cylinders.) • Combine shapes to make new shapes. • Decompose shapes into other shapes. • Build and draw shapes.	• The difference between two- and three-dimensional shapes. • A shape can be identified by the number of sides, vertices, or angles. • Three-dimensional or solid figures have a length, width, and height.	• Recognize and draw two-dimensional shapes based on specific attributes. • Recognize and draw three-dimensional shapes based on specific attributes. • Describe the attributes of shapes. • Identify the number of sides, angles, and vertices. • Identify triangle, quadrilateral, pentagon, hexagon, and cubes based on attributes.

GRADE 2

Geometry

Reason with shapes and their attributes

2.G.2 **Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.**	**Desired Student Performance**		
	A student should know	**A student should understand**	**A student should be able to do**
	• Partition rectangles into equal squares. • Know rows horizontal. • Know columns vertical. • Partitioning rectangles and describing as halves, fourths, and quarters. • Counting.	• When you add rows and columns, you get a sum. • You can divide rectangles up into smaller equal shares. • You can partition in more parts than halves, fourths, and quarters. • Decomposing into equal shares. • The connection between geometry and measurement is finding the area of a rectangle.	• Divide a rectangle into equal rows and columns, and count the total number of squares.

GRADE 2

Geometry

Reason with shapes and their attributes

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.**	**Desired Student Performance**		
	A student should know	**A student should understand**	**A student should be able to do**
	• Know the concept of equal parts. • Know the meaning of half. • Decompose into equal shares makes smaller shares. • Model draw to make fractions that represent them.	• The equal-sized parts have the same area but do not necessarily have the same shape. • Naming of equal parts of a whole using terminology mentioned in the standard (e.g., halves, thirds, half of, a third of).	• Describe the terms: halves, thirds, half of, a third of, fourths, etc. • Identify "equal shares." • Divide circles and rectangles into two, three, or four equal shares. • Demonstrate that equal shares of identical wholes do not need to have the same shape. • Partition shapes in equal shares that do and do not have the same shape.