



SECOND GRADE MATH

Approved by KSD Board of Education: (Insert date here)

Course Description:

In Grade 2, instructional time focuses on four areas: (1) extending understanding of base-ten notation; (2) problem-solving and building fluency with addition and subtraction; (3) describing and analyzing shapes and using and solving problems involving standard units of measure; and (4) representing and interpreting data.

Grade Level: Second Grade

Unit Scope and Sequence

Unit 1: Working with Data and Solving Comparison Problems

Unit 2: Adding and Subtracting Within 100

Unit 3: Measuring Length

Unit 4: Addition and Subtraction on the Number Line

Unit 5: Numbers to 1000

Unit 6: Geometry and Time

Unit 7: Adding and Subtracting Within 1000

Unit 8: Equal Groups

Course Enduring Understandings:

- Numbers have patterns.
- Our base 10 number system determines a digit's value.
- Addition and subtraction are related.

Course Essential Questions:

- How can patterns help solve problems?
- How are numbers related?
- What is the relationship between addition and subtraction?

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Unit 1: Working with Data and Solving Comparison Problems

Students add and subtract as they create and interpret bar graphs and picture graphs.

Unit Essential Learning Targets	
<i>Enduring Understandings</i>	<i>Essential Questions</i>
Picture graphs and bar graphs are a way to organize, interpret, and represent categorical data.	- How can you use patterns and strategies to find sums and differences? - How can picture graphs and bar graphs help you solve problems?
<i>Students must know:</i>	<i>Students must be able to:</i>
- Vocabulary - Bar Graph - Picture Graph - Tape Diagram	- Build fluency with adding and subtracting within 20. - Organize, interpret, and represent data on picture graphs and bar graphs. - Make sense of and solve <i>Compare</i> problems within 100. - Look for patterns in the addition table with addends up to 9. - Add and subtract within 10 using any strategy. - Find number pairs that make 10. - Read and interpret picture graphs. - Read and interpret bar graphs. - Relate bar graphs to tape diagrams. - Represent <i>Compare</i> statements with tape diagrams. - Solve <i>Compare</i> problems with unknowns in all positions.

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Unit 1: Working with Data and Solving Comparison Problems

Missouri Learning Standards

Priority Standards

- Demonstrate fluency with addition and subtraction within 20. (2.RA.A.1)
- Find the value of combinations of dollar bills, quarters, dimes, nickels, and pennies, using \$ and ¢ sign appropriately. (2.GM.D.12)

Supporting Standards

- Draw a picture graph or a bar graph to represent a data set with up to four categories. (2.DS.A.3)
- Demonstrate fluency with addition and subtraction within 100. (2.NBT.B.6)
- Write and solve problems involving addition and subtraction within 100. (2.NBT.C.11)

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Unit 2: Adding and Subtracting within 100

Students find the values of groups of coins, subtract by place value while decomposing, and solve one- and two-step story problems.

Unit Essential Learning Targets	
<i>Enduring Understandings</i>	<i>Essential Questions</i>
- Coins can be grouped by value to find a total sum. - Breaking numbers apart is a helpful strategy when adding and subtracting. - Place value can be used to add and subtract two digit numbers.	- How can we solve problems about money? - When and how do we decompose a ten? - How can we identify the unknowns in story problems?
<i>Students must know:</i>	<i>Students must be able to:</i>
- Vocabulary - Cent(s) - Dime - Penny - Nickel - Quarter - Dollar - Commutative Property of Addition - Compose - Decompose	- Find the value of a group of coins. - Use addition within 100 to solve story problems involving money. - Subtract within 100 using strategies based on place value, including decomposing a ten and applying the properties of operations. - Solve <i>Compare</i> story problems, with unknowns in all positions, within 100. - Add and subtract within 100 using strategies based on place value understanding and the relationship between addition and subtraction. - Represent and solve one- and two-step story problems involving addition and subtraction within 100. - Subtract a one-digit number from a two-digit number using any method. - Identify, know the values of, and describe pennies, nickels, dimes, and quarters.

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Unit 2: Adding and Subtracting within 100

Missouri Learning Standards

Priority Standards

- Find the value of combinations of dollar bills, quarters, dimes, nickels and pennies, using \$ and ¢ appropriately. (2.GM.D.12)
- Demonstrate fluency with addition and subtraction within 20. (2.RA.A.1)

Supporting Standards

- Write and solve problems involving addition and subtraction within 100. (2.NBT.C.11)
- Demonstrate fluency with addition and subtraction within 100. (2.NBT.B.6)
- Find combinations of coins that equal a given amount. (2.GM.D.13)

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Unit 3: Measuring Length

Students estimate and measure lengths, solve measurement story problems within 100, and create line plots.

Unit Essential Learning Targets	
<i>Enduring Understandings</i>	<i>Essential Questions</i>
Measuring in different length units affects the measurements.	- How can we estimate and measure the lengths of objects? - How can we represent and solve story problems involving measurement? - How can we represent measurement data in a line plot?
<i>Students must know:</i>	<i>Students must be able to:</i>
- Vocabulary - Centimeter - Foot - Inch - Line Plot - Meter - Ruler - Estimate - Tick Mark(s)	- Estimate and measure lengths in centimeters and meters. - Represent and solve one- and two-step story problems within 100 involving measurements in centimeters and meters. - Estimate and measure lengths in inches and feet. - Represent and solve one- and two-step story problems within 100 involving measurements in inches and feet. - Represent and interpret measurement data in a line plot. - Compare lengths of objects in inches and feet. - Determine the lengths of objects measured by a starting number other than zero on a measurement tool. - Generate measurement data by measuring lengths and make choices about how to represent data in line plots. - Represent and interpret data in a line plot.

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Unit 3: Measuring Length

Missouri Learning Standards

Priority Standards

- Demonstrate fluency with addition and subtraction within 20. (2.RA.A.1)
- Analyze the results of measuring the same object with different units. (2.GM.B.5)
- Solve problems using information presented in line plots, picture graphs, and bar graphs. (2.DS.A.4)
- Draw conclusions from line plots, picture graphs, and bar graphs. (2.DS.A.5)

Supporting Standards

- Demonstrate fluency with addition and subtraction within 100. (2.NBT.B.6)
- Measure the length of an object by selecting and using appropriate tools. (2.GM.B.4)
- Estimate lengths using units of inches, feet, yards, centimeters and meters. (2.GM.B.6)
- Measure to determine how much longer one object is than another. (2.GM.B.7)
- Use addition and subtraction within 100 to solve problems involving lengths that are given in the same units. (2.GM.C.8)
- Create a line plot to represent a set of numeric data, given a horizontal scale marked in whole numbers. (2.DS.A.1)
- Generate measurement data to the nearest whole unit, and display the data in a line plot. (2.DS.A.2)

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Unit 4: Addition and Subtraction on the Number Line

Students represent whole numbers within 100 and addition and subtraction strategies on a number line.

Unit Essential Learning Targets	
<i>Enduring Understandings</i>	<i>Essential Questions</i>
• Number lines can be used to represent addition and subtraction.	• How can I use a number line to represent numbers within 100? • How can I use a number line to represent addition and subtraction?
<i>Students must know:</i>	<i>Students must be able to:</i>
• Vocabulary ○ Open Number Line ○ Point ○ Number Line	• Represent whole numbers within 100 as lengths from 0 on a number line. • Understand the structure of a number line. • Represent sums and differences within 100 on a number line.

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Unit 4: Addition and Subtraction on the Number Line

Missouri Learning Standards

Priority Standards

- Represent whole numbers as lengths on a number line, and represent whole number sums and differences within 100 on a number line. (2.GM.C.9)
- Use the relationship between addition and subtraction to solve problems. (2.NBT.B.9)

Supporting Standards

- Count within 1000 by 1s, 10s, and 100s starting with any number. (2.NBT.A.3)
- Demonstrate fluency with addition and subtraction within 100. (2.NBT.B.6)
- Write and solve problems involving addition and subtraction within 100. (2.NBT.C.11)

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Unit 5: Numbers to 1,000

Students build upon their understanding of place value to compose, represent, and compare three-digit numbers.

Unit Essential Learning Targets	
<i>Enduring Understandings</i>	<i>Essential Questions</i>
• The value of a digit depends on its position within a number.	• How can we represent and compare the values of numbers greater than 100?
<i>Students must know:</i>	<i>Students must be able to:</i>
• Vocabulary ○ Expanded Form ○ Hundred(s) ○ Standard Form	• Read, write, and represent three-digit numbers using standard form, expanded form, and in words. • Use place value understanding to compose and decompose three-digit numbers. • Compare and order three-digit numbers using place value understanding and make connections between their values and their locations on a number line. • Compose a hundred with tens and ones, and find the values of groups of base-ten blocks. • Use place value understanding to compare 2 three-digit numbers using the $>$, $<$, and $=$ symbols.

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Unit 5: Numbers to 1,000

Missouri Learning Standards

Priority Standard

- Compare 2 three-digit numbers using the symbols $>$, $=$, or $<$. (2.NBT.A.5)

Supporting Standards

- Count within 1000 by 1s, 10s, and 100s starting with any number. (2.NBT.A.3)
- Read and write numbers to 1000 using number names, base-ten numerals, and expanded form. (2.NBT.A.4)

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Unit 6: Geometry and Time

Students reason with shapes and their attributes, partition shapes into equal parts, and tell time to the nearest 5 minutes.

Unit Essential Learning Targets	
<i>Enduring Understandings</i>	<i>Essential Questions</i>
• Shapes can be identified and described based on their attributes like number of sides, corners, and whether they are curved or straight. • Time can be measured and understood using a clock.	• What are the attributes of shapes? • How can we partition shapes into equal parts? • How do we tell time to the nearest 5 minutes?
<i>Students must know:</i>	<i>Students must be able to:</i>
• Vocabulary ○ a.m. ○ p.m. ○ Hexagon ○ Pentagon ○ Quadrilateral ○ Quarter Past ○ Quarter to ○ Third/Thirds ○ Three-Dimensional ○ Two-Dimensional	• Identify two- and three-dimensional shapes and recognize their attributes. • Partition rectangles and circles into halves, thirds, and fourths. • Tell and write time to the nearest 5 minutes, using a.m. and p.m. • Recognize and sort examples and non-examples of triangles, quadrilaterals, pentagons, and hexagons. • Recognize and draw triangles, quadrilaterals, pentagons, and hexagons. • Examine identical wholes that are partitioned into the same number of equal parts in different ways.

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Unit 6: Geometry and Time

Missouri Learning Standards

Priority Standard

- Partition circles and rectangles into two, three, or four equal shares, and describe the shares and the whole. A: Demonstrate that equal shares of identical wholes need not have the same shape. (2.GM.A.3.a)

Supporting Standards:

- Recognize and draw shapes having specified attributes, such as a given number of angles or sides. A: Identify triangles, quadrilaterals, pentagons, hexagons, circles, and cubes. (2.GM.A.1.a)
- Recognize and draw shapes having specified attributes, such as a given number of angles or sides. B: Identify the faces of three dimensional objects. (2.GM.A.1.b)
- Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. (2.GM.D.10)
- Describe a time shown on a digital clock as representing hours and minutes, and relate a time shown on a digital clock to the same time on an analog clock. (2.GM.D.11)

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Unit 7: Adding and Subtracting within 1,000

Students add and subtract within 1,000 by applying an understanding of place value, the relationship between addition and subtraction, and properties of operations.

Unit Essential Learning Targets	
<i>Enduring Understandings</i>	<i>Essential Questions</i>
• Addition and subtraction can be represented through concrete models. • Place value can be used to add and subtract three-digit numbers. • Composing and decomposing are sometimes necessary for addition and subtraction.	• How can we use what we know about place value to add and subtract within 1,000? • When and how do we compose or decompose a hundred or a ten? • How can we choose and explain strategies for adding and subtracting within 1,000?
<i>Students must know:</i>	<i>Students must be able to:</i>
• Associative Property of Addition	• Add numbers within 1,000 using strategies based on place value, including problems where composing a ten and/or a hundred is necessary. • Subtract numbers within 1,000 using strategies based on place value, including problems where decomposing a ten and/or a hundred is necessary. • Add and subtract numbers within 1,000 using strategies based on the relationship between addition and subtraction and the properties of operations. • Add up to 4 two-digit numbers using strategies based on place value and the properties of operations. • Flexibly choose strategies to add and subtract within 1,000 and explain reasoning for those choices.

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Unit 7: Adding and Subtracting within 1,000

Missouri Learning Standards

Priority Standards

- Understand three-digit numbers are composed of hundreds, tens, and ones. (2.NBT.A.1)
- Add or subtract within 1000, and justify the solution. (2.NBT.B.8)

Supporting Standards

- Add up to four two-digit numbers. (2.NBT.B.7)
- Add or subtract mentally 10 or 100 to or from a given number within 1000. (2.NBT.B.10)

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Unit 8: Equal Groups

Students work with equal groups of objects to gain foundations for multiplication.

Unit Essential Learning Targets

<i>Enduring Understandings</i>	<i>Essential Questions</i>
Repeated addition and multiplication are connected.	- How can we find whether an amount of objects is even or odd? - How can we use the structure of arrays to find the total amount they represent? - How can we use what we know about arrays to split a rectangle into equal-sized squares and find the total amount?
<i>Students must know:</i>	<i>Students must be able to:</i>
- Vocabulary - Array - Row - Column - Even - Odd	- Determine whether a group of up to 20 objects has an even or odd number of objects. - Recognize patterns in the sequence of odd and even numbers when counting by 1, 2, 5, and 10. - Write an equation to express an even number as a sum of 2 equal addends. - Find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns using addition, and represent the total as a sum of equal addends. - Partition rectangles into rows and columns of equal-sized squares, and count to find the total amount of squares.

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Unit 8: Equal Groups

Missouri Learning Standards

Priority Standards

- Find the total number of objects arranged in a rectangular array with up to 5 rows and 5 columns, and write an equation to represent the total as a sum of equal addends. (2.RA.B.3)
- Demonstrate fluency with addition and subtraction within 20. (2.RA.A.1)

Supporting Standards

- Partition a rectangle into rows and columns of same-size squares, and count to find the total number of squares. (2.GM.A.2)
- Determine if a set of objects has an odd or even number of members. a: Count by 2s to 100 starting with any even number. (2.RA.B.2.b)
- Determine if a set of objects has an odd or even number of members. c: Express even numbers as being composed of equal groups and write an expression to represent the number with 2 equal addends. (2.RA.B.2.c)