## RSU 54/MSAD 54 Math Curriculum

Content Area: Math
Grade: Grade 2
Unit: Operations and Algebraic Thinking
Common Core State Standards Domain: Operations and Algebraic Thinking

| Common Core State Standards | RSU 54/MSAD 54 <br> Objectives | Instructional Resources/Activities |
| :---: | :---: | :---: |
| Represent and solve problems involving addition and subtraction. <br> 1. Use addition and subtraction within 100 to solve one- and twostep 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. | Represent and solve problems involving addition and subtraction. <br> 1a. Solve problems involving addition and subtraction of whole numbers up to 100 . <br> 1b. Solve addition and subtraction word problems through the use of stories and modeling. Solve each of the problem types (adding to, taking from, putting together, taking apart, and comparing with unknowns in all positions.) <br> 1c. Explain strategies and solutions for solving word problems. <br> 1d. Model situations represented in word problems. | 1a. Scott Foresman, Chapters 1 and 2 <br> 1a. Teaching Arithmetic: Lessons for Introducing Place <br> Value, Cover a Flat pp. 139-145 <br> 1a. Teaching Arithmetic: Lessons in Addition and Subtraction, Name Values pp. 68-79 <br> 1a. Navigating through Number and Operations PK-2, One Out pp. 82-84; Hit the Target pp. 79- 80 <br> 1a. Navigating through Algebra in PK-2, Spin Once, Spin Twice pp. 62-64 <br> Connie Clark's Problem Solving Books <br> 1b. Zeroing in on Number and Operations, Join and Separate; Subtraction is More Than Take Away; What Do You See?; Posing Problems <br> 1c. Zeroing in on Number and Operations, Join and Separate; Subtraction is More Than Take Away; What Do You See?; Posing Problems <br> 1d. Zeroing in on Number and Operations, Join and Separate; Posing Problems |

within 20.
2. Fluently add and subtract within 20 using mental strategies. ${ }^{1}$ By end of Grade 2, know from memory all sums of two one-digit numbers.

| Add and subtract |
| :--- |
| within 20. |
| 2a. Fluently add and |
| subtract within 20 using |
| mental strategies. |

2a. Teaching Arithmetic: Lessons in Addition and Subtraction, X-Ray Vision pp. 122-123
2a. Navigating through Number and Operations PK-2, Double Plus or Minus pp. 62-63
2a. Navigating through Algebra in PK-2, Spin Once, Spin Twice pp. 62-64
2a. Mastering the Basic Math Facts in Addition and Subtraction
2a. Zeroing in on Number and Operations, Facts for Ten; Doubles and Near Doubles; Linking Addition and Subtraction; Anchoring to Ten
2a. Scott Foresman, Chapter 1 and 2
2a. Speed Tests (Mad Minutes)
2a-b. Games: (resource packet) "The Game of Tens and Ones," "Roll 3, Get 4," "101 and Out," "Finding Doubles," "Doubles," "Sum Crossouts," "Five Tower Game," "X-Ray Vision," "Place Value/Make a Ten Game," "SKUNK," "Number Island," "Close to 20," "Seeking Sums," "Four Sums in a Row," " 2a-b. Activities: (resource packet) "Ten Frames Addition," "Rhythm Addition," "Sum Triangles," "Joining Neighbors," "Number Trails," "Box Sums," "Doubles \& Doubles Plus One," "Fast Ten-Yes or No?" "Teen Take-Away"

2b. Teaching Arithmetic: Lessons in Addition and Subtraction, X-Ray Vision pp. 122-123
2b. Navigating through Number and Operations PK-2,
Double Plus or Minus pp. 62-63
2b. Navigating through Algebra in PK-2, Spin Once, Spin Twice pp. 62-64
2b. Mastering the Basic Math Facts in Addition and Subtraction
2b. Zeroing in on Number and Operations, Facts for Ten; Doubles and Near Doubles; Anchor to Ten
2b. Scott Foresman, Chapter 1 and 2
2b. Speed Tests (Mad Minutes)
2c. Mastering the Basic Math Facts in Addition and Subtraction
2c. Activities: (resource packet) "Ten Frames Subtraction," "Number Trails,"

| groups of objects to |
| :--- |
| gain foundations for |
| multiplication |

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.
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.
${ }^{1}$ See standard 1.OA. 6 for a list of mental strategies.
1.OA.6. Add and subtract within 20 , demonstrating fluency for addition and subtraction within 10 . Use strategies such as counting on; making ten (e.g., $8+6=8+2$ $+4=10+4=14$ ); decomposing a number leading to a ten (e.g., $13-4=13$ $-3-1=10-1=9$ ); using the relationship

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

3a. Determine whether a group of objects (up to 20) has an odd or even number of members. eg. By pairing objects or counting them by 2 's.

3b. Write an equation to express an even number as the sum of two equal addends (example, doubles... $2+2=4$, $3+3=6$ )

4a. Use repeated addition to find the total number of objects arranged in rectangular arrays (with addends being the number in each column or row).

4b. Write an equation to express the total number of objects in an array as a sum of equal addends.

5a. Identify true and false number sentences.

5b. Describe what makes a number sentence true or false.

5c. Determine the unknown whole number in an addition or subtraction equation.

3a. Scott Foresman, Lesson 3-9

3b. Zeroing in on Number and Operations, Doubles and Near Doubles

4a. Scott Foresman, Chapter 12
4a. Zeroing in on Number and Operations, What Do You See?
4a. Game: (resource packet) "Array Game"

4b. Scott Foresman, Chapter 12

5a-c. Zeroing In on Number and Operations, Equality
5a-c. "Understanding Equality and the Equal Sign" (resource packet)
5a-c. Game: (resource packet) "Balancing Act"

5c. Navigating through Algebra in PK-2, Block Pounds

| between addition and <br> subtraction (e.g., <br> knowing that $8+4=$ <br> 12, one knows $12-8$ <br> $=4)$; and creating |  |  |
| :--- | :--- | :--- |
| equivalent but easier |  | Literature Connections - |
| or known sums (e.g., |  | If you Made a Million by David M. Schwartz |
| adding $6+7$ by | Math for all Seasons by Greg Tang |  |
| creating the known |  |  |
| equivalent $6+6+1=$ |  | The Grapes of Math by Greg Tang |
| $12+1=13)$. | Calendar Math |  |

## RSU 54/MSAD 54 Math Curriculum

Content Area: Math
Grade: Grade 2
Unit: Number and Operations in Base Ten

Common Core State Standards Domain: Number and Operations in Base Ten


| 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). <br> 2. Count within 1000 ; skip-count by $5 \mathrm{~s}, 10 \mathrm{~s}$, and 100 s. | can be thought of as a bundle of 10 tens called a "hundred". <br> 1d. Understand that the numbers 100, 200, 300, ... 900 refer to $1,2,3$, ... 9 hundreds (and 0 tens and 0 ones.) | How Many Ways? pp. 26-28 (Modify to 1000) Zeroing in on Number and Operations, Equivalent Representations; Solving Problems 1c. Scott Foresman, Chapter 11 <br> 1d. Zeroing in on Number and Operations, Equivalent Representations; Solving Problems |
| :---: | :---: | :---: |
|  | 2a. Count on or count back from any number up to 1000. (Examples: If you start with 456 what are the next three numbers? 457, 458, 459. Or, when you count back what are the first three numbers? | 2a. Scott Foresman, Lesson 3-7; Chapter 10 |
|  | 2 b. Skip count by 5 's within 1,000 . | 2b. Navigating through Algebra in PK-2, Jumping Rules <br> pp. 22-23 <br> 2b. Teaching Arithmetic: Lessons for Introducing Place <br> Value, Stars in One Minute pp. 1-14; Dollar Signs pp. <br> 42-48; Counting Fish pp. 49-58 <br> 2b. Zeroing in on Number and Operations, Counting by <br> Twos, Fives, and Tens <br> 2b. Scott Foresman, Lesson 3-8 |
|  | 2c. Skip count by 10 's within 1,000 . | 2c. Teaching Arithmetic: Lessons for Introducing Place Value, Stars in One Minute pp. 1-14; Dollar Signs pp. 42-48; Counting Fish pp. 49-58; The Game of Tens and Ones pp. 104-114; Race for $\$ 1.00$ pp. 130-138 <br> 2c. Teaching Arithmetic: Lessons for Addition and Subtraction, Four Strikes and You're Out pp. 135-136 <br> 2c. Navigating Through Algebra in PK-2, Jumping <br> Rules pp. 22-23 <br> 2c. Zeroing in on Number and Operations, Counting by Twos, Fives, and Tens <br> 2c. Scott Foresman, Lesson 3-8 |
|  | 2d. Skip count by 100's within 1,000 . | 2d. Scott Foresman, Chapter 12, Lesson 1; Chapter 10, Lesson 1 |
| 3. Read and write numbers to 1000 using base-ten | 3a. Read and write numbers to 1,000 using | 3a. Navigating through Number and Operations in PK2, All in Order pp. 29-32 (Modify to 1000) |



| relationship between addition and subtraction. | commutative property, associative property, additive identity property of 0 , decomposing numbers, open number line, and hundreds chart.) <br> 5b. Fluently (accurately, efficiently, and flexibly) subtract within 100 using a variety of strategies. (Example: Place value, properties of operations, decomposing numbers, open number line, and hundreds chart.) <br> 5c. Demonstrate the relationship between addition and subtraction. | 100," "Spillover Game." <br> 5b. Zeroing in on Number and Operations, Modeling Addition and Subtraction; Open Number Line 5b. Game: (resource packet) "How Close to 0 " <br> 5c. Navigating through Algebra in PK-2, Math Machines pp. 69-70 <br> 5c. Zeroing in on Number and Operations, Anchor to Ten; Modeling Addition and Subtraction; Open Number Line |
| :---: | :---: | :---: |
| 6. Add up to four twodigit numbers using strategies based on place value and properties of operations. | 6. Add up to four twodigit numbers using strategies based on place value and properties of operations (Example: Place value, properties of operations, commutative property, associative property, additive identity property of 0 , decomposing numbers, open number line, and hundreds chart). |  |
| 7. Add and subtract within 1000 , using concrete models or drawings and strategies based on place value, properties of | 7a. Add and subtract within 1,000 , using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship | 7a. Zeroing in on Number and Operations, Modeling Addition and Subtraction; Open Number Line 7a. Scott Foresman, Chapter 11 |

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.
8. Mentally add 10 or

100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900.
9. Explain why addition and subtraction strategies work, using place value and the properties of operations. ${ }^{1}$
${ }^{1}$ Explanations may be supported by drawings or objects.
between addition and subtraction.

7b. Relate the strategy to the written method.

7c. 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. (Students are not expected to add or subtract whole numbers using standard algorithms by the end of second grade.)

8a. Mentally add 10 or 100 to a given number 100-900.

8b. Mentally subtract 10 or 100 from a given number 100-900.
9. Explain why addition and subtraction strategies work, using place value and properties of operations (using drawing, objects, or verbal.)

7b. Zeroing in on Number and Operations, Modeling Addition and Subtraction; Open Number Line

7c. Scott Foresman, Lesson 10-4

8a-b. Scott Foresman, Lessons 10-4 and 10-6
8a-b. Daily Mental Math
8a-b. Game: (resource packet) "The Game of Tens and Ones"
9. Scott Foresman, Chapter 11

## Literature Connections -

The King Commissioners by Aileen Friedman
Count on Pablo by Barbara du Rubertis
The King's Chessboard by Devis Grebu
Spaghetti and Meatballs by Marilyn Burns
The Doorbell Rang by Pat Hutchins
Math for all Seasons by Greg Tang
The Grapes of Math by Greg Tang
Two Ways to Count to Ten by Ruby Dee
1 Hunter by Pat Hutchins

|  |  | Additional Resource - <br> Calendar Math |
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## RSU 54/MSAD 54 Math Curriculum

Content Area: Math
Grade: Grade 2
Unit: Measurement and Data
Common Core State Standards Domain: Measurement and Data

| Common Core State Standards | RSU 54/MSAD 54 Objectives | Instructional Resources/Activities |
| :---: | :---: | :---: |
| Measure and estimate lengths in standard units. | Measure and estimate lengths in standard units. |  |
| 1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. | 1. Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. | 1. Teaching Arithmetic: Lessons in Addition and Subtraction, Body Measurements pp.91-96 <br> 1. Scott Foresman, Lessons 9-1 to 9-4 |
| 2. Measure the length of an object twice, using length units of different lengths for the two measurements; | 2a. Measure the length of an object twice, using length units of different lengths for the two measurements. | 2a. Teaching Arithmetic: Lessons in Addition and Subtraction, Body Measurements pp. 91-96 <br> 2a. Navigating through Measurement in PK-2, How Many in a $\qquad$ ? pp. 54-56 |
| describe how the two measurements relate to the size of the unit chosen. | 2b. Describe how the two measurements relate to the size of the unit chosen. | 2b. Teaching Arithmetic: Lessons in Addition and Subtraction, Body Measurements pp. 91-96 <br> 2b. Navigating through Measurement in PK-2, How Many in a $\qquad$ ? pp. 54-56 |




| 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. <br> 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. | measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. <br> 9b. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units. <br> 10a. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. <br> 10b. Solve simple puttogether, take-apart, and compare problems using information presented in a bar graph. | Many in a__? pp. 54-56 <br> 9b. Scott Foresman, Lesson 8-14 <br> 10a. Navigating through Data Analysis and Probability in PK-2, Morley Most and Lutie Least pp. 36-40; Back and Forth pp. 44-49; Conducting a Survey pp. 53-55; Whom Do You Believe? pp. 58-60 <br> 10a. Scott Foresman, Lessons 8-12 and 8-13 <br> 10b. Navigating through Data Analysis and Probability in PK-2, Morley Most and Lutie Least pp. 36-40; Back and Forth pp. 44-49; Conducting a Survey pp. 53-55; What a Difference a Day Makes pp. 55-57 10b. Scott Foresman, Lesson 8-13 <br> Literature Connections - <br> Math Curse by Jon Scieszka and Lane Smith <br> Pigs will be Pigs by Amy Axelrod <br> Alexander, Who Used to be Rich Last Sunday by Judith <br> Viorst <br> How Big is a Foot? by Rolf Myller <br> Much Bigger Than Martin by Steven Kellogg <br> Clocks and More Clocks by Pat Hutchins <br> Measuring Penny by Loreen Leedy <br> If you Made a Million by David M. Scwartz <br> Additional Resource - <br> Calendar Math |
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## RSU 54/MSAD 54 Math Curriculum

Content Area: Math
Grade: Grade 2
Unit: Geometry

## Common Core State Standards Domain: Geometry



| identical wholes need <br> not have the same <br> shape. | 3c. Recognize that equal <br> shares of identical <br> wholes need not have <br> the same shape. <br> directly or visually, <br> not compared by <br> measuring. | (Example: A square can <br> be equally divided into <br> triangles or rectangles.) |
| :--- | :--- | :--- |
| 1 Sizes are compared <br> directly or visually, not <br> compared by measuring. | Literature Connections - <br> The Greedy Triangle by Marilyn Burns <br> Grandfather Tang's Story by Ann Tompert |  |
| When a Line Begins...a Shape Begins by Rhonda <br> Gowler Greene <br> Mummy Math, An Adventure in Geometry by Cindy |  |  |
| Neuschwander |  |  |
| Additional Resource - |  |  |
| Calendar Math |  |  |

