Grade 2 SPED Mathematics Curriculum Guide

Grade Level/Course Title: Grade 2	**Trimester 1**	**Academic Year:** 2014-2015

Grade Level Mathematics Focus:
In Grade 2, instructional time should focus on four critical areas: (1) extending understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

Essential Questions for this Unit:
1. How can students extend their understanding of the base-ten system, including ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing?
2. How can 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)?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Aug.- Nov.) **Unit 1:** **Whole Numbers & Place Value** **(Approx. 65 days)**	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.	• Using open number lines and bar models with single digit numbers • Decomposition by place value • Decomposition of whole numbers by addition • Using decomposition to add and subtract whole numbers • Using open number lines to represent multi-digit addition and subtraction • Using bar models to add and subtract multi-digit numbers • Inverse relationship between addition and subtraction • Commutative and associative properties of addition	**Chapter 2 (25 days)** Lesson 1-1: Numbers 0 to 20 Lesson 1-2: Numbers 0 to 50 Progress Check 1 Replay Lesson 1-3: Numbers 0 to 100 Lesson 1-4: Number 0 to 200 Progress Check 2 Replay Lesson 1-5: Number 0 to 500 Lesson 1-6: Kip Count by 2s Progress Check 3 Replay Lesson 1-7: Skp Count by 5s Lesson 1-8: Skip Count by 10s Progress Check 4 Replay Review Assessment Test Practice Use throughout Unit: Plotting Numbers on a Number Line [L] Fact Families [L] Sums to 10, 100, and 1,000 [L] Comparing Numbers [L]
	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.		
	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.		
	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.		

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1. How can students extend their understanding of the base-ten system, including ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing?
2. How can 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)?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Aug.- Nov.) **Unit 1: (Continued)** **Whole Numbers & Place Value** **(Approx. 65 days)**	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.	• Using open number lines and bar models with single digit numbers • Decomposition by place value • Decomposition of whole numbers by addition • Using decomposition to add and subtract whole numbers • Using open number lines to represent multi-digit addition and subtraction • Using bar models to add and subtract multi-digit numbers • Inverse relationship between addition and subtraction • Commutative and associative properties of addition	**Chapter 2 (25 days)** Lesson 2-1: Model Numbers 1 to 20 by Ones and Tens Lesson 2-2: Model Numbers 1 to 50 by Ones and Tens Progress Check 1 Replay Lesson 2-3: Numbers 1 to 100 Lesson 2-4: Numbers 1 to 500 Progress Check 2 Replay Lesson 2-5: Numbers 1 to 1,000 Lesson 2-6: Short Word Form Progress Check 3 Replay Lesson 2-7: Writing Numbers Lesson 2-8: Round Using a Number line Progress Check 4 Replay Review Assessment Test Practice Use throughout Unit: Plotting Numbers on a Number Line [L] Fact Families [L] Sums to 10, 100, and 1,000 [L] Comparing Numbers [L]
	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.		
	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.		
	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.		

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1. How can students extend their understanding of the base-ten system, including ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing?
2. How can 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)?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Aug.- Nov.) **Unit 1: (Continued)** **Whole Numbers & Place Value** **(Approx. 65 days)**	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.	• Using open number lines and bar models with single digit numbers • Decomposition by place value • Decomposition of whole numbers by addition • Using decomposition to add and subtract whole numbers • Using open number lines to represent multi-digit addition and subtraction • Using bar models to add and subtract multi-digit numbers • Inverse relationship between addition and subtraction • Commutative and associative properties of addition	**Chapter 3 (15 days)** Lesson 3-1: Compare Numbers 0 to 50 Lesson 3-2: Compare Numbers 0 to 100 Progress Check 1 Replay Lesson 3-3: Compare Numbers 100 to 500 by Tens and Hundreds Lesson 3-4: Compare Numbers 500 to 1,000 by Tens and Hundreds Progress Check 2 Replay Lesson 3-5: Compare and Order Numbers 1 to 100 Lesson 3-6: Compare and Order Numbers to 500 Progress Check 3 Replay Review Assessment Test Practice Use throughout Unit: Plotting Numbers on a Number Line [L] Fact Families [L] Sums to 10, 100, and 1,000 [L] Comparing Numbers [L]
	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.		
	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.		
	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.		

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Essential Questions for this Unit:
1. How can students use their understanding of addition to develop fluency with addition and subtraction within 100?
2. How can students learn to solve problems within 1000 by applying their understanding of models for addition and subtraction, and 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?
3. How can students 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?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Dec.- March) **Unit 2:** **Addition and Subtraction** **(Approx. 75 days)**	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).	• Decomposition by place value and within place values • Open number lines • Bar models • Inverse relationship between addition and subtraction with multi-digit numbers • Commutative and associative properties of addition	**Chapter 4 (25 days)** Lesson 4-1: Sums of 0 to 5 Lesson 4-2: Sums of 6 and 7 Progress Check 1 Replay Lesson 4-3: Sums of 8, 9, and 10 Lesson 4-4: Subtract from 0 to 5 Progress Check 2 Replay Lesson 4-5: Subtract from 6 and 7 Lesson 4-6: Subtract from 8, 9, and 10 Progress Check 3 Replay Lesson 4-7: Fact Families Review Assessment Test Practice Use throughout Unit: Adding Whole Numbers — Multiple Algorithms [L] Adding and Subtracting Whole Numbers — Multiple Representations [CP] Adding and Subtracting Within 100 [L] Adding By Finding Tens [L] Represent Unknowns Using Multiple Methods [L] Multi-Step Word Problems [L] Subtracting Whole Numbers — Multiple Methods [L] Subtraction — Comparison Model [L] Sums to 10, 100, and 1,000 [L]
	2.NBT.2	Count within 1000; skip-count by **2s**, 5s, 10s, and 100s. **CA**		
	2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.		
	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.		

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Essential Questions for this Unit:
1. How can students use their understanding of addition to develop fluency with addition and subtraction within 100?
2. How can students learn to solve problems within 1000 by applying their understanding of models for addition and subtraction, and 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?
3. How can students 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?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Dec.- March) **Unit 2:** **(Continued)** **Addition and Subtraction** **(Approx.** **75 days)**	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.	• Decomposition by place value and within place values • Open number lines • Bar models • Inverse relationship between addition and subtraction with multi-digit numbers • Commutative and associative properties of addition	**Chapter 5 (25 lessons)** Lesson 5-1: Add by 10s Lesson 5-2: Add by 100s Progress Check 1 Replay Lesson 5-3: Use Place Value to Add Lesson 5-4: Repeated Addition Progress Check 2 Replay Lesson 5-5: Estimate Sums Lesson 5-6: Add Two-Digit Numbers Progress Check 3 Replay Lesson 5-7: Add Three One-Digit Numbers Review Assessment Test Practice Use throughout Unit: Adding Whole Numbers — Multiple Algorithms [L] Adding and Subtracting Whole Numbers — Multiple Representations [CP] Adding and Subtracting Within 100 [L] Adding By Finding Tens [L] Represent Unknowns Using Multiple Methods [L] Multi-Step Word Problems [L] Subtracting Whole Numbers — Multiple Methods [L] Subtraction — Comparison Model [L] Sums to 10, 100, and 1,000 [L]
	2.NBT.6	Add up to four two-digit numbers using strategies based on place value and properties of operations.		
	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. 7.1 Use estimation strategies to make reasonable estimates in problem solving. CA		
	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.		
	2.NBT.9	Explain why addition and subtraction strategies work, using place value and the properties of operations.		

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Essential Questions for this Unit:
1. How can students describe and analyze shapes by examining their sides and angles?
2. How can students investigate, describe, and reason about decomposing and combining shapes to make other shapes?
3. How can students, through building, drawing, and analyzing two- and three-dimensional shapes, develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Dec.- March) **Unit 2:** **(Continued)** **Addition and Subtraction** **(Approx.** **75 days)**	2.G.1	Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	• Attributes of geometric shapes • Decomposing and re-composing shapes • Foundations of area, volume, congruence, similarity, and symmetry • Equal share (fractional) representations of two dimensional shapes • Understanding equal shares (equivalent fractions) need not be represented by the same shape, e.g., one-half of the same whole can be represented with different shapes	**<u>Chapter 6 (25 days)</u>** Lesson 6-1: Count Back to Subtact Lesson 6-2: Subtract by 10s Progress Check 1 Replay Lesson 6-3: Count Back from Hundreds Lesson 6-4: Subtract by 100s Progress Check 2 Replay Lesson 6-5: Use Place Value to Subtract Lesson 6-6: Estimate Differences Progress Check 3 Replay Review Assessment Test Practice Use throughout Unit: Adding Whole Numbers — Multiple Algorithms [L] Adding and Subtracting Whole Numbers — Multiple Representations [CP] Adding and Subtracting Within 100 [L] Adding By Finding Tens [L] Represent Unknowns Using Multiple Methods [L] Multi-Step Word Problems [L] Subtracting Whole Numbers — Multiple Methods [L] Subtraction — Comparison Model [L] Sums to 10, 100, and 1,000 [L]
	2.G.2	Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.		
	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.		

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Essential Questions for this Unit:
1. How can students recognize the need for standard units of measure (centimeter and inch) and use rulers and other measurement tools with the understanding that linear measure involves an iteration of units?
2. How can students recognize that the smaller the unit, the more iterations they need to cover a given length?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(April - June.) **Unit 3:** **Measurement** **(Approx. 45 days)**	2.MD.1	Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	• Concept of iteration for measurement • Understanding the need for standard units • Length • Relate addition and subtraction to length	**<u>Chapter 7 (15 days)</u>** Lesson 7-1: Same or Different Lesson 7-2: Compare Two Objects Progress Check 1 Replay Lesson 7-3: Long, Longer, Longest Lesson 7-4: Short, Shorter, Shortest Progress Check 2 Replay Lesson 7-5: Tall, Taller, Tallest Lesson 7-6: Distance Lesson 7-7: Nonstandard Measurement Progress Check 3 Replay Review Assessment Test Practice Use throughout Unit: Appropriate and Correct Measurement [L] Measurement in the Primary Grades [L] Decomposing/Recomposing Geometric Shapes [L]
	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.		
	2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.		
	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.		
	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.		
	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.		

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Essential Questions for this Unit:
1. How can students learn to solve problems within 1000 by applying their understanding of models for addition and subtraction, and 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?
2. How can students recognize the need for standard units of measure (centimeter and inch) and use rulers and other measurement tools with the understanding that linear measure involves an iteration of units?
3. How can students recognize that the smaller the unit, the more iterations they need to cover a given length?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(April - June.) **Unit 3:** **(Continued)** **Measurement** **(Approx. 45 days)**	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. 7.1 Use estimation strategies to make reasonable estimates in problem solving. CA	• Decomposition by place value and within place value as a strategy to add or subtract • Representing addition and subtraction in multiple ways, e.g., bar models and open number lines • Concept of iterating a unit for measurement • Solving word problems based on data in a graph	**Chapter 8 (15 days)** Lesson 8-1: Introduction to Inches Lesson 8-2: Measure Inches Progress Check 1 Replay Lesson 8-3: Estimate Inches Lesson 8-4: Introduction to Centimeters Progress Check 2 Replay Lesson 8-5: Measure Centimeters Lesson 8-6: Estimate Centimeters Lesson 8-7: Compare Inches and Centimeters Progress Check 3 Replay Review Assessment Test Practice Use throughout Unit: Appropriate and Correct Measurement [L] Measurement in the Primary Grades [L] Decomposing/Recomposing Geometric Shapes [L]
	2.MD.3	Estimate lengths using units of inches, feet, centimeters, and meters.		
	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.		
	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.		

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1. How can students learn to solve problems within 1000 by applying their understanding of models for addition and subtraction, and 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?
2. How can students recognize the need for standard units of measure (centimeter and inch) and use rulers and other measurement tools with the understanding that linear measure involves an iteration of units?
3. How can students recognize that the smaller the unit, the more iterations they need to cover a given length?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(April - June.) **Unit 3:** **(Continued)** **Measurement** **(Approx.** **45 days)**	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.	• Decomposition by place value and within place value as a strategy to add or subtract • Representing addition and subtraction in multiple ways, e.g., bar models and open number lines • Concepts of time, money, and solving problems in these contexts	**<u>Chapter 9 (15 days)</u>** Lesson 9-1: Use Patter Blocks Lesson 9-2: Build Figures Progress Check 1 Replay Lesson 9-3: Take Figures Apart Lesson 9-4: Compare Figures Progress Check 2 Replay Lesson 9-5: Fit Figures to Shapes Lesson 9-6: Compare Sizes Lesson9-7: Solve Tangrams Progress Check 3 Replay Review Assessment Test Practice Use throughout Unit: Appropriate and Correct Measurement [L] Measurement in the Primary Grades [L] Decomposing/Recomposing Geometric Shapes [L]
	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. 7.1 Use estimation strategies to make reasonable estimates in problem solving. CA		
	2.MD.7	Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. Know relationships of time (e.g., minutes in an hour, days in a month, weeks in a year). CA		
	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?*		