Grade 5 SPED Mathematics Curriculum Guide

Grade Level/Course Title: Grade 5	**Trimester** 1	**Academic Year:** 2014-2015

Grade Level Mathematics Focus:
In Grade 5, instructional time should focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; and (3) developing understanding of volume.

Essential Questions for this Unit:
1. How can students apply their understanding of arithmetic to formulate and evaluate expressions.
2. How can students apply their understanding of mathematics to solve real-world problems.
3. How can students generate terms in patterns, form ordered pairs, and graph them on a coordinate plane.

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Aug-Sep) **Unit 1:** **Number Sense and Place Value** **(Approx. 15 days)**	5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents to its left.	• Syntax • Mental Math • Word problems • Decomposition of numbers • Numerical expressions • Variable expressions • Real-world application of expressions • Associative Property • Commutative Property • Graph using patterns and relationships • Graph on a coordinate plane	**Chapter 1 (15 days)** Lesson 1-1: Whole Numbers Less Than 10,000 Lesson 1-2: Read and Write Whole Numbers in the Millions Progress Check 1 Lesson 1-3: Number Relationships Lesson 1-4: Linear Patterns Progress Check 2 Study Guide Chapter Assessment Test Practice Use throughout unit: Common Addition & Subtraction Situations (CCSS Resource) Common Multiplication & Division Situations (CCSS Resource) Adding Whole Numbers and Decimals [L] Variables [L]
	5.NBT.2	Explain patterns in the number of zeroes of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.		

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Essential Questions for this Unit:
1. How can students apply their understanding of arithmetic to formulate and evaluate expressions.
2. How can students apply their understanding of mathematics to solve real-world problems.
3. How can students graph on a coordinate plane.

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Sept. - Oct.) **Unit 2:** **Multiplication & Division** **(Approx. 40 days)**	5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	• Mental Math • Word problems • Decomposition of numbers • Partial sums and differences with whole numbers and decimals • Use open number lines to add and subtract • Multiplying by powers of 10 • Equal-sized groups • Repeated Addition • Arrays • Bar models • Commutative Property • Associative Property • Distributive Property	**Chapter 2 (20 days)** Lesson 2-1: Multiply by 0, 1, 5, and 10 Lesson 2-2: Multiply by 2, 3, 4, and 6 Progress Check 1 Lesson 2-3: Multiply by 7, 8, and 9 Lesson 2-4: Multiply by 11 and 12 Progress Check 2 Lesson 2-5: Multiply Greater Numbers Lesson 2-6: Multiplication and Division Progress Check 3 Study Guide Chapter Assessment Test Practice Use throughout unit: Common Addition & Subtraction Situations (CCSS Resource) Common Multiplication & Division Situations (CCSS Resource) Area Model Through The Grades [CP] Multiplication Fact Mastery Through Multiple Methods [L] Multiplication Selected Response Practice [L] Multiplication Using the Distributive Property [L] Multiplying Multi-Digit Number [L] Multiplying Whole Numbers – Generic Rectangle [L] Conceptualizing Division [L] Dividing Decimals [L] Division Algorithms [L] Division – Divvy Out Greater Numbers [L]
	5.NBT.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.		
	5.NBT.7	Add, subtract, multiply, & divide decimals to hundredths, 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 and explain reasoning used.		

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Essential Questions for this Unit:
1. How can students develop understanding of base-ten numerals?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Sept. - Oct.) **Unit 2: (Continued)** **Multiplication & Division** **(Approx. 40 days)**	5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	• Mental Math • Word problems • Decomposition of numbers • Partial sums and differences with whole numbers and decimals • Use open number lines to add and subtract • Multiplying by powers of 10 • Equal-sized groups • Repeated Addition • Arrays • Bar models • Commutative Property • Associative Property • Distributive Property	**Chapter 3 (20 days)** Lesson 3-1: Model Division Lesson 3-2: Divide by 0, 1, and 10 Progress Check 1 Lesson 3-3: Divide by 2 and 5 Lesson 3-4: Divide by 3 and 4 Progress Check 2 Lesson 3-5: Divide by 6 and 7 Lesson 3-6: Divide by 8 and 9 Progress Check 3 Study Guide Chapter Assessment Test Practice Use throughout unit: Common Addition & Subtraction Situations (CCSS Resource) Common Multiplication & Division Situations (CCSS Resource) Area Model Through The Grades [CP] Multiplication Fact Mastery Through Multiple Methods [L] Multiplication Selected Response Practice [L] Multiplication Using the Distributive Property [L] Multiplying Multi-Digit Number [L] Multiplying Whole Numbers – Generic Rectangle [L] Conceptualizing Division [L] Dividing Decimals [L] Division Algorithms [L] Division – Divvy Out Greater Numbers [L]
	5.NBT.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/ or area models.		
	5.NBT.7	Add, subtract, multiply, & divide decimals to hundredths, 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 and explain reasoning used.		

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Essential Questions for this Unit:
1. How can students develop understanding of why adding, subtracting, multiplying and division procedures work based on the meaning of base-ten numerals and properties of operations?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(November) **Unit 3:** **Properties** **(Approx. 15 days)**	5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product	• Mental Math • Word problems • Decomposition of numbers • Partial sums and differences with whole numbers and decimals • Use open number lines to add and subtract • Multiplying by powers of 10 • Equal-sized groups • Repeated Addition • Arrays • Bar models • Commutative Property • Associative Property • Distributive Property	**Chapter 4 (15 days)** Lesson 4-1: Commutative Property Lesson 4-2: Associative Property Progress Check 1 Lesson 4-3: Distributive Property Lesson 4-4: Order of Operations Progress Check 2 Study Guide Chapter Assessment Test Practice Use throughout unit: Adding & Subtracting Whole Numbers – Multiple Methods [CP] Distributive Property [CP]

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Essential Questions for this Unit:
1. How can students develop understanding of why adding, subtracting, multiplying and division procedures work based on the meaning of base-ten numerals and properties of operations?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Dec. - Feb.) **Unit 4:** **Fractions** **(Approx. 50 days)**	5.NF.3	Interpret a fraction as division of the numerator by the denominator (a/b = a÷b). Solve word problems involving division of whole numbers leading to answers in the form of fractions & mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, & that when 3 wholes are shared equally among 4 people, each person has a share size of 3/4. If 9 people want to share a 50-pound sack of rice equally, how many pounds of rice should each person get? Between what two whole numbers does the answer lie?*	• Mental Math • Word problems • Decomposition of fractions • Number sense of fractions • Multiplicative Identity Property • Equivalent forms of 1 • Equivalent fractions (incl. mixed numbers and improper fractions) • Visual models to compare, multiply and divide fractions & mixed numbers. • Bar models to compare, multiply, & divide fractions • Area models to multiply fractions	**Chapter 5 (25 days)** Lesson 5-1: Parts of a Whole and Parts of a Set Lesson 5-2: Equivalent Fractions and Equivalent Forms of One Progress Check 1 Lesson 5-3: Mixed Numbers and Improper Fractions Lesson 5-4: Least Common Denominator and GCF Progress Check 2 Lesson 5-5: Compare and Order Fractions Lesson 5-6: Simplify Fractions Progress Check 3 Study Guide Chapter Assessment Test Practice Use throughout unit: Prime Factorization [CP] Least Common Multiple [CP] Least Common Multiple - Bubble Method [L] Adding Fractions with Multiple Methods [CP] Adding Fractions with Unlike Denominators Using Pattern Blocks [CP] Adding Fractions with Unlike Denominators [L] Fraction Bars [GMR] Comparing and Ordering Fractions – Benchmark Fractions [CP] Number Lines, Fractions, and Bar Models [L] Dividing by Decomposing Fractions [L] Converting Improper Fractions and Mixed Numbers [L]
	5.NF.4	Apply and extend previous understanding of multiplication to multiply a fraction or a whole number by a fraction. a. Interpret the product (a/b) x q as parts of a partition of q into b equal parts, equivalently, as the result of a sequence of operations a x q ÷ b. *For example, use a visual fraction model to show (2/3) x 4 = 8/3, and create a story context for this equation. Do the same with (2/3) x (4/5) = 8/15. (In general, (a/b) x (c/d) = ac/bd.)* b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.		

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Essential Questions for this Unit:
1. How can students develop understanding of why adding, subtracting, multiplying and division procedures work based on the meaning of base-ten numerals and properties of operations?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Dec. - Feb.) **Unit 4:** **Fractions** **(Approx. 50 days)**	5.NF.4	Apply and extend previous understanding of multiplication to multiply a fraction or a whole number by a fraction. a. Interpret the product (a/b) x q as parts of a partition of q into b equal parts, equivalently, as the result of a sequence of operations a x q ÷ b. *For example, use a visual fraction model to show (2/3) x 4 = 8/3, and create a story context for this equation. Do the same with (2/3) x (4/5) = 8/15. (In general, (a/b) x (c/d) = ac/bd.)* b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	• Mental Math • Word problems • Decomposition of fractions • Number sense of fractions • Multiplicative Identity Property • Equivalent forms of 1 • Equivalent fractions (incl. mixed numbers and improper fractions) • Visual models to compare, multiply and divide fractions & mixed numbers. • Bar models to compare, multiply, & divide fractions • Area models to multiply fractions	**Chapter 6 (25 days)** Lesson 6-1: Add Fractions with Like Denominators Lesson 6-2: Subtract Fractions with Like Denominators Progress Check 1 Lesson 6-3: Add Fractions with Unlike Denominators Lesson 6-4: Subtract Fractions with Unlike Denominators Progress Check 2 Study Guide Chapter Assessment Test Practice Use throughout unit: Prime Factorization [CP] Least Common Multiple [CP] Least Common Multiple - Bubble Method [L] Adding Fractions with Multiple Methods [CP] Adding Fractions with Unlike Denominators Using Pattern Blocks [CP] Adding Fractions with Unlike Denominators [L] Fraction Bars [GMR] Comparing and Ordering Fractions – Benchmark Fractions [CP] Number Lines, Fractions, and Bar Models [L] Dividing by Decomposing Fractions [L] Converting Improper Fractions and Mixed Numbers [L]

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Grade Level/Course Title: Grade 5	**Trimester** 2	**Academic Year:** 2014-2015

Grade Level Mathematics Focus:
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Essential Questions for this Unit:
1. How can students use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense? (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(Feb. - March) **Unit 5:** **Decimals** **(Approx. 25 days)**	5.NBT.3	Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3x100 + 4x10 + 7x1 + 3x + 9x + 2x b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record results of comparisons.	• Mental Math • Word problems • Decomposition of numbers • Place value for whole numbers and decimals • Expanded notation • Estimating • Rounding • Comparing values • Multiplying and dividing by powers of 10 • Prime factoring	**Chapter 7 (25 days)** Lesson 7-1: Introduction to Decimals Lesson 7-2: Equivalent Decimals Progress Check 1 Lesson 7-3: Compare and Order Decimals Lesson 7-4: Estimate Decimal Sums and Differences Profess Check 2 Lesson 7-5: Add Decimals Lesson 7-6: Subtract Decimals Profess Check 3 Study Guide Chapter Assessment Test Practice Use throughout unit: Equivalent Decimals and Fractions [L] Rounding and Estimating [L] Decimal Operations [CP]
	5.NBT.3	Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3x100 + 4x10 + 7x1 + 3x + 9x + 2x b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record results of comparisons.		

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Essential Questions for this Unit:
1. How can students use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense? (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(March - May) **Unit 6:** **Geometry** **(Approx. 60 days)**	5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles & squares are rectangles, so all squares have 4 right angles.*.	• Definitions of 2D geometric shapes • Categories and subcategories of 2D shapes	**Chapter 8 (20 days)** Lesson 8-1: Quadrilaterals Lesson 8-2: Triangles Progress Check 1 Lesson 8-3: Circles Lesson 8-4: Three Dimensional Figures Progress Check 2 Study Guide Chapter Assessment Test Practice Use throughout unit: Quadrilaterals [CP]
	5.G.4	Classify two-dimensional figures in a hierarchy based on properties.		

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Essential Questions for this Unit:
1. How can students use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense? (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources
(March - May) **Unit 6:** **(Continued)** **Geometry** **(Approx. 60 days)**	5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles & squares are rectangles, so all squares have 4 right angles.*.		**Chapter 9 (20 days)** Lesson 9-1: Introduction to Area Lesson 9-2: Area of a Rectangle Progress Check 1 Lesson 9-3: Area of a Parallelogram Lesson 9-4: Area of a Triangle Progress Check 2 Study Guide Chapter Assessment Test Practice Use throughout unit: Parent Guide (English): Dividing Fractions Parent Guide (Spanish): Dividiendo Fracciones Dividing Fractions [CP] Modeling Division of Whole Numbers by Fractions [L]
	5.G.4	Classify two-dimensional figures in a hierarchy based on properties.		

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Essential Questions for this Unit:
1. How can students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators (including mixed numbers) as equivalent calculations with like denominators?
2. How can students develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them?

Unit (Time)	Standard	Standard Description	Content	Triumphs/Resources

(May - June)
 	
Unit 7:
 	
Measurement
 	
(Approx. 60 days)
	5.MD.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05m), and use these conversions in solving multi-step, real world problems.	• Measurement unit conversion
			• Analyzing and displaying data using line plots
			• Area of quadrilaterals
			• Volume of rectangular prisms
			• Volume formulas:
			  • Length (l) x width x height: $V = lwh$
			  • Area of base(B) x height(h): $V = Bh$
			• Solve real-world problems involving volume
				<u>Chapter 10 (20 days)</u>
				
				Lesson 10-1: Unit Conversions: Metric Capacity and Mass
				Lesson 10-2: Unit Conversions: Customary Capacity and Weight
				Progress Check 1
				Lesson 10-3: Surface Area of Rectangular Solids
				Lesson 10-4: Introduction to Volume
				Lesson 10-5: Volume of Rectangular Solids
				Progress Check 2
				Study Guide
				Chapter Assessment
				Test Practice
				
				Use throughout unit:
				Bar Models for Customary Units [GMR]
				Measurement [L]
				Volume of Prisms, Cylinders and Cones [CP]
				Volume: A Foundation in Unit Cubes [L]
				Rectangular Prisms: Units of Measure [L]

	5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length of 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.		
	5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.		