FIFTH GRADE MATHEMATICS CURRICULUM

Course 50510

Fifth grade students will apply concepts of place value to operations involving multi-digit whole numbers and decimals. Students will understand and use order of operations and apply rounding to both whole numbers and decimals. They will add, subtract, multiply and divide fractions. Graphing points on the coordinate plane will be used to solve mathematical problems. They will solve problems that involve conversions of measurements and solve problems involving volume. In the area of geometry, students will classify figures and shapes into categories based on their properties. Data will be represented with attention to using appropriate scale.

FIFTH GRADE MATHEMATICS OUTLINE:

Goals	Skills	Summative Assessments	Time Frame	Main Resources
• Apply place value concepts to show an understanding of operations and rounding as they pertain to whole numbers and decimals. • Extend an understanding of operations with whole numbers to perform operations including decimals. • Apply and extend previous understandings of multiplication and division to multiply and divide fractions. • Graph points in the first quadrant on the coordinate plane and interpret these points when solving real world and mathematical problems. • Represent and interpret data using appropriate scale. • Apply concepts of volume to solve problems and relate volume to multiplication and to addition.	• Use the understanding of equivalency to add and subtract fractions. • Interpret and evaluate numerical expressions using order of operations. • Analyze patterns and relationships using two rules. • Solve problems using conversions within a given measurement system. • Solve problems involving computation of fractions using information provided in a line plot. • Classify two-dimensional figures into categories based on an understanding of their properties.	Mid-year and End of Year Benchmark Assessments, PSSA	1-year	Everyday Math 4th ed.

FIFTH GRADE MATHEMATICS MAP:

TIME FRAME	BIG IDEAS	CONCEPTS	ESSENTIAL QUESTIONS	STANDARDS	OBJECTIVES	DIFFERENTIATION	ASSESSMENT
Unit 1 (Weeks 1-3)	• Mathematical relationships among numbers can be represented, compared, and communicated.	1. Rectangular Arrays 2. Factors 3. Divisibility 4. Prime and Composite 5. Square Numbers 6. Un-squaring Numbers 7. Factor Strings 8. Prime Factorization	• How is mathematics used to quantify, compare, represent, and model numbers? • How can patterns be used to describe relationships in mathematical situations?	CC.2.2.5.A.4 Analyze patterns and relationships using two rules.	• Review rectangular arrays and multiplication number models. • Review and practice factoring. • Introduce prime, composite, and square numbers. • Develop exponents and square roots concepts.		Student Math Journal Pages 1-28 Unit 1 Test Various supplemental materials
Unit 2 (Weeks 4-6)	• Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.	1. Addition of whole numbers and decimals 2. Subtraction of whole numbers and decimals 3. Addition and subtraction number stories 4. Estimate your reaction time 5. Chance events 6. Estimating products 7. Multiplication of whole numbers and decimals	• What does it mean to estimate or analyze numerical quantities? • What makes a tool and/or strategy appropriate for a given task? • How precise do measurements and calculations need to be? • How can probability and data analysis be used to make predictions?	CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals.	• Devise an estimation strategy to solve a problem. • Subtract multi-digit numbers. • Review and apply vocabulary associated with chance events. • Make magnitude estimates for products of multi-digit numbers. • Review and practice multiplication. • Understand the relative sizes of 1 million, 1 billion, and 1 trillion.		Student Math Journal pages 29-59 Unit 2 Test Various supplemental materials
Unit 3 (Weeks 7-9)	• Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	1. Explore angle measures 2. Use a protractor 3. Use a compass 4. Congruent triangles 5. Properties of polygons 6. Regular tessellations 7. Angles of polygons	• How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? • How can the application of the attributes of geometric shapes support	CC.2.3.5.A.2 Classify two-dimensional figures into categories based on an understanding of their properties.	• Explore data collections, organization, and interpretation. • Review types of angles, geometric figures, and the use of geometry tools. • Explore the geometric properties polygons. • Explore side and angle relationships		Student Math Journal pages 60-98 Unit 3 Test Various supplemental materials

			mathematical reasoning and problem solving?		in regular tessellations.		
Unit 4 (Weeks 10-12)	• Patterns exhibit relationships that can be extended, described, and generalized.	1. Division facts and extensions 2. Long division 3. Division of decimal numbers 4. Interpreting the remainder	• How is mathematics used to quantify, compare, represent, and model numbers?	CC.2.1.5.B.1 Apply place value to show an understanding of operations and rounding as they pertain to whole numbers and decimals. CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals.	• Review multiplication and division facts • Divide decimals by whole numbers • Practice solving division number stories and interpreting the remainder		Student Math Journal Pages 99-120 Unit 4 Tests Various supplemental materials
Unit 5 (Weeks 13-15)	• Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.	1. Fraction review 2. Changing mixed numbers to improper fractions, vice versa 3. Comparing and ordering fractions 4. Two rules for finding equivalent fractions 5. Changing fractions to decimals and round them 6. Using a calculator to convert fractions to percentages 7. Bar and circle graphs 8. Make and read percent circles	• How is mathematics used to quantify, compare, represent, and model numbers? • How are relationships represented mathematically? • When is it is appropriate to estimate versus calculate?	CC.2.1.5.B.1 Apply place value to show an understanding of operations and rounding as they pertain to whole numbers and decimals. CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals. CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.	• Review fraction concepts, such as exploring mixed numbers, comparing and ordering fractions, and finding equivalent fractions • Practice turning fractions into decimals and percentages • Review the properties and construction of bar and circle graphs		Student Math Journal pages 121-163 Unit 5 Test Various supplemental materials
Unit 6 (Weeks 16-18)	• Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and	1. Organizing data 2. Natural measure of length 3. Stem and leaf plots 4. Analysis of sample data 5. Add and subtract	• How is mathematics used to quantify, compare, represent, and model numbers? • How are relationships	CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals.	• Use data from surveys to begin using stem-and-leaf plots and investigate the effect of sample size • Read and use		Student Math Journal pages 164-204 Unit 6 Test Various supplemental

	tools.	fractions 6. Clock fractions 7. Common denominators 8. Quick common denominators	represented mathematically? • When is it is appropriate to estimate versus calculate?	CC.2.1.5.C.1 Use the understanding of equivalency to add and subtract fractions. CC.2.4.5.A.1 Solve problems using conversions within a given measurement system. CC.2.4.5.A.2 Represent and interpret data using appropriate scale.	contour maps that show climate and growing-season data • Revisit addition and subtraction of fractions		materials
Unit 7 (Weeks 19-21)	• Mathematical relationships among numbers can be represented, compared, and communicated.	1. Order of operations 2. Graphing in the first quadrant 3. Addition and subtraction of negative integers	• How is mathematics used to quantify, compare, represent, and model numbers?	CC.2.2.5.A.1 Interpret and evaluate numerical expressions using order of operations. CC.2.3.5.A.1 Graph points in the first quadrant on the coordinate plane and interpret these points when solving real world and mathematical problems.	• Identify and write sentences that model number stories. • Solve problems involving parentheses and nested parentheses. • Evaluate numerical expressions using order of operations. • Use given data to create line graphs. • Use line graph to interpret data and answer questions.		Evaluation of oral and slate responses Math journal classwork Study Link homework pages Unit 7 exam
Unit 8 (Weeks 22-24)	• Mathematical relationships among numbers can be represented, compared, and communicated. • Patterns exhibit relationships that can be extended, described, and generalized.	1. Comparing fractions 2. Adding/subtracting mixed numbers and fractions 3. Multiplication/division of fractions, mixed numbers, and whole numbers 4. Finding a percent of a number 5. Relating fractional units to the whole	• How is computation with fractions and decimals similar to and different from whole number computation? • What does it mean to estimate or analyze numerical quantities?	CC.2.1.5.B.1 Apply place value to show an understanding of operations and rounding as they pertain to whole numbers and decimals. CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals.	• Compare and order fractions. • Add/subtract fractions with common denominators. • Find equivalent fractions and express in simplest form. • Convert between fractions and mixed numbers, decimals, and percentages.		Evaluation of oral and slate responses Math journal classwork Study Link homework pages Unit 8 exam

			CC.2.1.5.C.1 Use the understanding of equivalency to add and subtract fractions. CC.2.1.5.C.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.			
Unit 9 (Weeks 25-27)	• Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.	1. Plotting coordinates on a graph 2. Finding areas rectangles, triangles, parallelograms 3. Finding volume of prisms measured in liters, milliliters, and cubic centimeters	• How do we measure capacity, weight, or mass? • Why does "what" we measure influence "how" we measure?	CC.2.1.5.B.1 Apply place value to show an understanding of operations and rounding as they pertain to whole numbers and decimals. CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals. CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.	• Use ordered pairs and numbers to name, locate, and plot points in the first quadrant of a coordinate grid. • Investigate and use a formula to calculate the area of a rectangle, triangle, and parallelogram. • Compare inch and centimeter measures for length and area. • Collect and organize data. • Use a formula to calculate the volume of prisms. • Explore relationships between units of length and units of capacity.	Evaluation of oral and slate responses Math journal classwork Study Link homework pages Unit 9 exam
Unit 10 (Weeks 28-31)	• Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations. • Mathematical relations and	1. Algebraic expressions 2. Representing tables and graphs 3. Interpreting tables and graphs 4. Circumference and area of a circle	• How can expressions, equations, and inequalities be used to quantify, solve, model, and/or analyze mathematical situations? • How can data be	CC.2.3.5.A.1 Graph points in the first quadrant on the coordinate plane and interpret these points when solving real world and mathematical problems.	• Identify and use patterns in tables to solve problems. • Write algebraic expressions to model rules. • Use variables to write number models that describe situations.	Evaluation of oral and slate responses Math journal classwork Study Link homework pages

				CC.2.4.5.A.2 Represent and interpret data using appropriate scale. CC.2.4.5.A.4 Solve problems involving computation of fractions using information provided in a line plot.	• Represent functions with tables, graphs, and formulas. • Read and analyze line graphs and answer questions based on the display data. • Find landmark numbers (median, mean, mode, range, etc.) of a given data set.		Unit 10 exam
	functions can be modeled through multiple representations and analyzed to raise and answer questions.		organized and represented to provide insight into the relationship between quantities?				
Unit 11 (Weeks 32-34)	• Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	1. Properties of geometric solids 2. Volume of cylinders, pyramids, and cones 3. Capacity and weight 4. Surface Area	• How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? • How can geometric properties and theorems be used to describe, model, and analyze situations?	CC.2.3.5.A.1 Graph points in the first quadrant on the coordinate plane and interpret these points when solving real world and mathematical problems. CC.2.3.5.A.2 Classify two-dimensional figures into categories based on an understanding of their properties. CC.2.4.5.A.5 Apply concepts of volume to solve problems and relate volume to multiplication and to addition.	• Compare and classify geometric solids according to their properties. • Apply formulas to calculate the area of a circle and the volume of prisms and cylinders. • Compare volume and capacity of cylinders. • Convert between standard units of capacity.		Evaluation of oral and slate responses Math journal classwork Study Link homework pages Unit 11 exam
Unit 12 (Weeks 35-36)	• Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions. • Data can be modeled and used to make inferences.	1. Ratios of parts to whole 2. Number models for Ratio Number Stories 3. Collecting, graphing, and interpreting data	• What makes a tool and/or strategy appropriate for a given task? • How can probability and data analysis be used to make predictions?	CC.2.3.5.A.2 Classify two-dimensional figures into categories based on an understanding of their properties. CC.2.4.5.A.1 Solve problems using conversions within a given measurement system. CC.2.4.5.A.2	• Describe events using basic probability terms. • Write ratios in equivalent forms and express in a variety of ways. • Model and solve ratio problems. • Identify equivalent expressions for ratios.		Evaluation of oral and slate responses Math journal classwork Study Link homework pages Unit 12 exam

				Represent and interpret data using appropriate scale.			