

FOURTH GRADE MATHEMATICS CURRICULUM

Course 50410

Fourth grade students will apply concepts of place value to multi-digit whole numbers including performing multi-digit arithmetic (addition, subtraction, multiplication, and division). They will use decimal notation and connect that to their understanding of fractions. Two-dimensional figures will be drawn and identified and classified by their properties. They will recognize shapes and draw lines of symmetry. Students will learn to measure and to convert between units of measure. When working with data, they will incorporate fractions and also learn to translate information from one type of data display to another.

FOURTH GRADE MATHEMATICS OUTLINE:

Goals	Skills	Summative Assessments	Time Frame	Main Resources
<ul style="list-style-type: none"> • Apply place value concepts to show an understanding of multi-digit whole numbers. • Extend the understanding of fractions to show equivalence and ordering. • Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g., 19/100). • Develop and/or apply number theory concepts to find factors and multiples. • Find all factor pairs for a whole number in the range 1–100. • Generate and analyze patterns using one rule. • Recognize symmetric shapes and draw lines of symmetry. • Translate information from one type of data display to another. • Represent and interpret data involving fractions using information provided in a line plot 	<ul style="list-style-type: none"> • Use place value understanding and properties of operations to perform multi-digit arithmetic. • Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. • Represent and solve problems involving the four operations. • Draw lines and angles and identify these in two-dimensional figures. • Classify two-dimensional figures by properties of their lines and angles. • Solve problems involving measurement and conversions from a larger unit to a smaller unit. • Measure angles and use properties of adjacent angles to solve problems. 	<p>Mid-year and End of Year Benchmark Assessments, PSSA</p>	<p>1-year</p>	<p>Everyday Math 4th ed.</p>

FOURTH GRADE MATHEMATICS MAP:

TIME FRAME	BIG IDEAS	CONCEPTS	ESSENTIAL QUESTIONS	STANDARDS	OBJECTIVES	DIFFERENTIATION	ASSESSMENT
Unit 1 (Weeks 1-2)	<ul style="list-style-type: none"> Geometric shapes have defined properties, are more than numbers and have strong ties to language and art. 	<ol style="list-style-type: none"> Identifying Properties of Regular and Irregular Shapes- Including Triangles, Quadrangles, Parallelograms, Polygons, Circles, Hexagons; Properties of Points, Line Segments, Lines, Rays, Angles 	<ul style="list-style-type: none"> How are spatial relationships, including shape and dimension, used to draw, construct, model and represent real situations or solve problems? 	<p>CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures.</p> <p>CC.2.3.4.A.2 Classify two-dimensional figures by properties of their lines and angles.</p> <p>CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.</p>	<ul style="list-style-type: none"> Solve simple addition, subtraction, multiplication, and division problems Describe characteristics of line segments, lines and rays Construct angles, triangles, and quadrangles Classify quadrangles based on side and angle properties Categorize polygons according to properties Produce circles and measure distance using a compass Measure line segments to the nearest centimeter 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p> <p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>
Unit 2 (Weeks 3-4)	<ul style="list-style-type: none"> Extend knowledge of place value and use estimation to determine size or distance. 	<ol style="list-style-type: none"> Naming Numbers Place Value Organizing Data Displaying Data Median, Bar Graphs Addition and Subtraction of Multi- 	<ul style="list-style-type: none"> How is mathematics used to quantify, compare, represent, and model numbers? 	<p>CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers.</p>	<ul style="list-style-type: none"> Extend numerical patterns Recognize equivalent mathematical expressions for 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>

		digit Numbers		<p>CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi-digit arithmetic.</p>	<p>whole numbers</p> <ul style="list-style-type: none"> • Read and write numbers up to one million; identify the values of digits • Solve open sentences • Construct tally charts, line plots and bar graphs, to display a set of data • Identify landmarks in a given set of data • Estimate solutions to multi-digit addition and subtraction problems 	<p>content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p> <p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	
Unit 3 (Weeks 5-7)	<ul style="list-style-type: none"> • Some questions can be answered by utilizing the four basic operations with a focus on real world problem solving strategies. 	<ol style="list-style-type: none"> 1. Multiplication and Division 2. Fact Families 0-12 3. Order of Operations in Number Sentences 	<ul style="list-style-type: none"> • How can having a quick recall of multiplication and division fact families benefit problem solving? 	<p>CC.2.2.4.A.1 Represent and solve problems involving the four operations.</p> <p>CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples.</p>	<ul style="list-style-type: none"> • Solve the four basic arithmetic operations • Identify patterns in multiplication/division facts • Use data to create a line graph • Apply multiplication and division facts and extended facts to solve problems • Estimate using a map scale • Interpret and produce number models • Determine whether a number sentence is true or false • Evaluate 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p> <p>Provide additional</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>

					<p>expressions containing parentheses</p> <ul style="list-style-type: none"> Solve open sentences using the four basic arithmetic operations 	<p>opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	
Unit 4 (Weeks 8-10)	<ul style="list-style-type: none"> Mathematical relationships among numbers can be represented, compared and communicated. 	<ol style="list-style-type: none"> Decimal Place Value, Comparing and Ordering Decimals Addition and Subtraction of Decimals Metric Units of Length 	<ul style="list-style-type: none"> What does it mean to estimate or analyze numerical quantities? How precise do measurements and calculations need to be? 	<p>CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering.</p> <p>CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit.</p>	<ul style="list-style-type: none"> Read and write decimal numbers Identify the values of digits in decimals Estimate sums and differences of decimals Add and subtract decimals Employ extended multiplication facts to convert between metric measurements Measure the length of objects using metric units 	<p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>
Unit 5 (Weeks 11-13)	<ul style="list-style-type: none"> Mathematical relationships can be represented as expressions, equations and inequalities and use them to solve problems. 	<ol style="list-style-type: none"> Extended Multiplication Facts, Estimating Sums and Products, Lattice Multiplication Rounding Numbers Powers of 10 	<ul style="list-style-type: none"> When is it appropriate to estimate verses calculate? 	<p>CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers.</p> <p>CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p>CC.2.1.4.C.3 Connect decimal</p>	<ul style="list-style-type: none"> Solve multi-digit multiplication problems Use basic facts to compute extended facts Estimate sums and products Generate products using a variety of algorithms Use exponential notation to represent powers of ten Identify digits and their values 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>

				<p>notation to fractions, and compare decimal fractions (base 10 denominator, e.g, 19/100).</p> <p>CC.2.2.4.A.1 Represent and solve problems involving the four operations.</p> <p>CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples.</p>		<p>which prepares students to engage in the lesson.</p> <p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	
<p>Unit 6 (Weeks 14-16)</p>	<ul style="list-style-type: none"> Mathematical relationships among numbers can be represented, compared and communicated. 	<ol style="list-style-type: none"> Multiplication and Division of Number Stories Division, Rotations and Angles Using a Protractor Coordinate Grid Systems 	<ul style="list-style-type: none"> What makes a tool and/or strategy appropriate for a given task? 	<p>CC.2.1.4.B.1 Apply place value concepts to show an understanding of multi-digit whole numbers.</p> <p>CC.2.1.4.B.2 Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p>CC.2.2.4.A.1 Represent and solve problems involving the four operations.</p> <p>CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples.</p>	<ul style="list-style-type: none"> Describe the inverse relationship between multiplication and division Solve multiplication and division number stories Apply extended multiplication facts to long division situations Solve division number stories Write number models to represent multiplication and division number stories Classify angles according to their measure Draw and measure angles with a full-circle protractor Use ordered number pairs to locate points on a grid Describe the relationship between 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p> <p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>

					rotations and degrees <ul style="list-style-type: none"> • Construct angles of a given measure 	Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.	
Unit 7 (Weeks 17-19)	<ul style="list-style-type: none"> • Mathematical relationships among numbers can be represented, compared and communicated through models of fractions, multiplication and division facts. 	<ol style="list-style-type: none"> 1. Fraction Addition and Subtraction 2. Ordering and Comparing Fractions 3. Using Fractions to Determine Probability 	<ul style="list-style-type: none"> • How can probability and data analysis be used to make predictions? • How can fractions be used to analyze data related to probability and chance? 	<p>CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering.</p> <p>CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.</p> <p>CC.2.1.4.C.3 Connect decimal notation to fractions, and compare decimal fractions (base 10 denominator, e.g, 19/100).</p> <p>CC.2.4.4.A.2 Translate information from one type of data display to another.</p> <p>CC.2.4.4.A.4 Represent and interpret data involving fractions using information provided in a line plot.</p>	<ul style="list-style-type: none"> • Identify fractions as equal parts of a whole • Solve problems involving fractional parts • Identify equivalent fractions and mixed numbers • Add fractions with like denominators • Express the probability of an event as a fraction • Develop a rule for generating equivalent fractions • Compare fractions • Order fractions • Conduct experiments and calculate expected probability • Rename fractions as percentages • Evaluate the likelihood of events using basic probability terms 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p> <p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	Daily Assessment Math Boxes Exit Slips Unit Assessment
Unit 8 (Weeks 20-21)	<ul style="list-style-type: none"> • Mathematical relations and functions can be modeled through multiple 	<ol style="list-style-type: none"> 1. Finding Perimeter of Regular and Irregular Shapes and Finding Area of Rectangles 2. Parallelograms and 	<ul style="list-style-type: none"> • In what ways are the mathematical attributes of objects 	<p>CC.2.4.4.A.1 Solve problems involving measurement and conversions from a</p>	<ul style="list-style-type: none"> • Create a tally chart • Measure distances in feet and inches • Develop a scale drawing 	Provide lesson specific suggestions to help English language learners understand	Daily Assessment Math Boxes Exit Slips

	representations and analyzed to raise and answer questions.	Triangles	measured, calculated or interpreted?	larger unit to a smaller unit. CC.2.4.4.A.6 Measure angles and use properties of adjacent angles to solve problems.	<ul style="list-style-type: none"> Calculate the perimeter of a polygon Find the area of polygons Develop formulas for calculating the area of triangles, parallelograms, and rectangles Rename fractions as decimals 	<p>and process the mathematical content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p> <p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	Unit Assessment
Unit 9 (Weeks 22-24)	<ul style="list-style-type: none"> Mathematical relationships among numbers can be represented, compared and communicated. 	<ol style="list-style-type: none"> Convert Fractions to Decimals and Percents Recognizing Easy Fractions, Decimals and Percents Multiplication and Division of Decimals 	<ul style="list-style-type: none"> How are relationships represented mathematically? 	<p>CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering.</p> <p>.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.</p> <p>CC.2.1.4.C.3 Connect decimal notation to fractions,</p>	<ul style="list-style-type: none"> Rename fractions as decimals Solve percent-of problems Find equivalent names for percentages Distinguish between terminating and repeating decimals Compare fractions with unlike denominators Create a table, chart, or map to display data Multiply and divide decimals 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>

				and compare decimal fractions (base 10 denominator, e.g, 19/100).	<ul style="list-style-type: none"> Model how to use a calculator to rename fractions, decimals, and percentages 	<p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	
Unit 10 (Weeks 25-26)	<ul style="list-style-type: none"> Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualizations. 	<ol style="list-style-type: none"> Lines of Reflection Identifying Relationships Between Positive and Negative Numbers Addition and Subtraction of Positive and Negative Numbers 	<ul style="list-style-type: none"> How can geometric properties and theorems be used to describe, model, and analyze situations? 	<p>CC.2.2.4.A.4 Generate and analyze patterns using one rule.</p> <p>CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures.</p> <p>CC.2.3.4.A.2 Classify two-dimensional figures by properties of their lines and angles.</p> <p>CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.</p>	<ul style="list-style-type: none"> Solve problems using spatial visualization Define basic properties of reflections Identify and draw lines of symmetry Identify, describe, and sketch reflections, rotations, and translations Identify and draw congruent figures 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p> <p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>

						apply or further explore the mathematical content of the lesson.	
Unit 11 (Weeks 27-28)	<ul style="list-style-type: none"> Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualizations. 	<ol style="list-style-type: none"> 3D Shapes Weight Volume, and Capacity 	<ul style="list-style-type: none"> How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving? 	<p>CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures.</p> <p>CC.2.3.4.A.2 Classify two-dimensional figures by properties of their lines and angles.</p> <p>CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.</p>	<ul style="list-style-type: none"> Convert between metric and customary units of weight Identify parallel and intersecting line segments, parallel planes, and parallel faces Extend numeric patterns Describe, compare, and classify plane and solid figures Describe relationships among customary units of capacity Calculate surface area Construct prisms 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical content.</p> <p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p> <p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>
Unit 12 (Weeks 29-30)	<ul style="list-style-type: none"> Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. 	<ol style="list-style-type: none"> Rates 	<ul style="list-style-type: none"> How can data be organized and represented to provide insight into the relationship between quantities? 	<p>CC.2.2.4.A.1 Represent and solve problems involving the four operations.</p> <p>CC.2.2.4.A.4 Generate and analyze patterns</p>	<ul style="list-style-type: none"> Collect and organize data to create a table or line graph Convert between rates Analyze and interpret data Use patterns and 	<p>Provide lesson specific suggestions to help English language learners understand and process the mathematical content.</p>	<p>Daily Assessment</p> <p>Math Boxes</p> <p>Exit Slips</p> <p>Unit Assessment</p>

				using one rule.	rules to solve rate problems <ul style="list-style-type: none">• Use data landmarks to draw conclusions and make predictions• Use the four basic arithmetic operations to solve problems	<p>Provide materials, activities and/or informal questioning to assess prior knowledge and preview content which prepares students to engage in the lesson.</p> <p>Provide additional opportunities to apply the mathematical content of the lessons including math stations, projects, and math games.</p> <p>Provide projects and materials that allow students to apply or further explore the mathematical content of the lesson.</p>	
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