

Summit Public Schools Summit, New Jersey
Grade Level 5
Content Area: Math

Fifth Grade Scope and Sequence

Summary of the Year

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.

Overview

OPERATIONS AND ALGEBRAIC THINKING

Write and interpret numerical expressions. Analyze patterns and relationships.

NUMBER AND OPERATIONS IN BASE TEN

Understand the place value system. Perform operations with multi-digit whole numbers and with decimals to hundredths.

NUMBER AND OPERATIONS— FRACTIONS

Use equivalent fractions as a strategy to add and subtract fractions. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

MEASUREMENT AND DATA

Convert like measurement units within a given measurement system. Represent and interpret data.

Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

GEOMETRY

Graph points on the coordinate plane to solve real-world and mathematical problems.

Classify two-dimensional figures into categories based on their properties.

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<p>Year-at-a-Glance:</p> <p>Marking Period 1 -Place Value -Multiplying Whole Numbers -Algebraic Expressions -Dividing Whole Numbers -Comparing and Ordering Decimals -Adding and Subtracting Decimals -Problem Solving</p> <p>Marking Period 2 - Multiplying Decimals -Dividing Decimals -Adding and Subtracting Fractions and Mixed Numbers - Multiplying and Dividing Fractions and Mixed Numbers -Numerical Expressions, Patterns, and Relationships -Problem Solving</p> <p>Marking Period 3 -Data -Classifying Plane Figures -Numerical Patterns -Graphing and Analyzing Data -Volume of Solids -Units of Measure -Problem Solving</p>	<p>STANDARDS FOR MATHEMATICAL PRACTICE:</p> <ol style="list-style-type: none">1. Make sense of problems and persevere in solving them.2. Reason abstractly and quantitatively.3. Construct viable arguments and critique the reasoning of others.4. Model with mathematics.5. Use appropriate tools strategically.6. Attend to precision.7. Look for and make use of structure.8. Look for and express regularity in repeated reasoning.
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Major **Supporting** **Additional** (identified by PARCC Model Content Framework)

Marking Period	GOMath Chapter #/Title	Standards
MP 1	<p>Chapter 1 Title: Place Value, Multiplication, and Expressions</p> <ul style="list-style-type: none"> -Investigate: Place Value and Patterns -Place Value of Whole Numbers -Properties -Powers of 10 & Exponents -Multiplication Patterns -Multiply by 1-Digit Numbers -Multiply by Multi-Digit Numbers -Relate Multiplication to Division -Problem Solving: Solve a Simpler Problem -Numerical Expressions -Evaluate Numerical Expressions -Grouping Symbols <p><i>Approximate number of instructional days: 16</i></p>	<p>5.OA.A.1: Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.</p> <p>5.OA.A.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 $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.</p> <p>5.NBT.A.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 in the place to its left.</p> <p>5.NBT.A.2: Explain patterns in the number of zeros 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.</p> <p>5.NBT.B.5: Fluently multiply multi-digit whole numbers using the standard algorithm.</p> <p>5.NBT.B.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.</p> <p>5.NF.B.3: Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or 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, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</p>

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<p>Chapter 2 Title: Divide Whole Numbers</p> <ul style="list-style-type: none"> -Place the First Digit -Divide by 1-Digit Divisors -Investigate: Division with 2-Digit Divisors -Partial Quotients -Estimate with 2-Digit Divisors -Divide by 2-Digit Divisors -Interpret the Remainder -Adjust Quotients -Problem Solving: Draw a Diagram <p><i>Approximate number of instructional days: 13</i></p> <p>Chapter 3 Title: Add and Subtract Decimals</p> <ul style="list-style-type: none"> -Investigate: Thousandths -Place Value of Decimals -Compare and Order Decimals -Round Decimals -Investigate: Decimal Addition -Investigate: Decimal Subtraction -Estimate Decimal Sums and Differences 	<p>5.NBT.A.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 in the place to its left.</p> <p>5.NBT.A.3a: Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.</p> <p>5.NBT.A.3b: Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.</p> <p>5.NBT.A.4: Use place value understanding to round decimals to any place.</p> <p>5.NBT.B.7: Add, subtract, multiply, and 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 the reasoning used.</p>
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	<ul style="list-style-type: none"> -Add Decimals -Subtract Decimals -Patterns with Decimals -Problem Solving: Make a Table -Choose a Method <p><i>Approximate number of instructional days: 16</i></p>	
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MP 2	<p>Chapter 4 Title: Multiply Decimals</p> <ul style="list-style-type: none"> -Multiplication Patterns with Decimals -Investigate: Multiply Decimals & Whole Numbers -Multiplication with Decimals & Whole Numbers -Multiply Using Expanded Form -Problem Solving: Draw a Diagram -Investigate: Decimal Multiplication -Multiply Decimals -Zeros in the Product <p><i>Approximate number of instructional days: 12</i></p> <p>Chapter 5 Title: Divide Decimals</p> <ul style="list-style-type: none"> -Division Patterns with Decimals 	<p>5.NBT.A.2: Explain patterns in the number of zeros 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.</p> <p>5.NBT.B.7: Add, subtract, multiply, and 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 the reasoning used.</p> <p>5.NBT.A.2: Explain patterns in the number of zeros 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.</p> <p>5.NBT.B.7: Add, subtract, multiply, and 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 the reasoning used.</p> <p>5.OA.A.2: Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. <i>For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.</i></p> <p>5.NF.A.1: Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given</p>
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<ul style="list-style-type: none"> -Investigate: Divide Decimals by Whole Numbers -Estimate Quotients -Division of Decimals by Whole Numbers -Investigate: Decimal Division -Divide Decimals -Write Zeros in the Dividend -Problem Solving: Work Backwards <p><i>Approximate number of instructional days: 13</i></p> <p>Chapter 6</p> <p>Title: Add and Subtract Fractions with Unlike Denominators</p> <ul style="list-style-type: none"> -Investigate: Addition with Unlike Denominators gr -Investigate: Subtraction with Unlike Denominators gr -Estimate Fraction Sums and Differences gr -Common Denominators and Equivalent Fractions gr -Add and Subtract Fractions -Add and Subtract Mixed Numbers -Subtraction with Renaming -Patterns with Fractions -Problem Solving: Working Backwards -Use Properties of Addition 	<p>fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$. (In general, $\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}$.)</p> <p>5.NF.A.2: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $\frac{2}{5} + \frac{1}{2} = \frac{3}{7}$, by observing that $\frac{3}{7} < \frac{1}{2}$.</p> <p>5.NF.B.4a: Interpret the product $(\frac{a}{b}) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(\frac{2}{3}) \times 4 = \frac{8}{3}$, and create a story context for this equation. Do the same with $(\frac{2}{3}) \times (\frac{4}{5}) = \frac{8}{15}$. (In general, $(\frac{a}{b}) \times (\frac{c}{d}) = \frac{ac}{bd}$.)</p> <p>5.NF.B.4b: 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.</p> <p>5.NF.B.5a: Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.</p> <p>5.NF.B.5b: Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{n \times a}{n \times b}$ to the effect of multiplying $\frac{a}{b}$ by 1.</p> <p>5.NF.B.6: Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.</p> <p>5.NF.B.3: Interpret a fraction as division of the numerator by the denominator ($\frac{a}{b} = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $\frac{3}{4}$ as the</p>
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<p><i>Approximate number of instructional days: 15</i></p> <p>Chapter 7 Title: Multiply Fractions -Find Part of a Group -Investigate: Multiply Fractions & Whole Numbers -Fraction and Whole Number Multiplication -Investigate: Multiply Fractions -Compare Fraction Factors and Products -Fraction Multiplication -Investigate: Area and Mixed Numbers -Compare Mixed Number Factors and Products -Multiply Mixed Numbers -Problem Solving: Guess, Check, and Revise</p> <p><i>Approximate number of instructional days: 13</i></p> <p>Chapter 8 Title: Divide Fractions -Investigate: Divide Fractions & Whole Numbers -Problem Solving: Draw a Diagram -Connect Fractions to Division -Fraction and Whole Number Division</p>	<p>result of dividing 3 by 4, noting that $\frac{3}{4}$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $\frac{3}{4}$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</p> <p>5.NF.B.7a: Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for $(\frac{1}{3}) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(\frac{1}{3}) \div 4 = \frac{1}{12}$ because $(\frac{1}{12}) \times 4 = \frac{1}{3}$.</p> <p>5.NF.B.7b: Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for $4 \div (\frac{1}{5})$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (\frac{1}{5}) = 20$ because $20 \times (\frac{1}{5}) = 4$.</p> <p>5.NF.B.7c: Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, how much chocolate will each person get if 3 people share $\frac{1}{2}$ lb of chocolate equally? How many $\frac{1}{3}$-cup servings are in 2 cups of raisins?</p>
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	<p>-Interpret Division with Fractions</p> <p><i>Approximate number of instructional days: 9</i></p>	
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MP 3	<p>Chapter 11 green Title: Geometry and Volume</p> <p>-Polygons -Triangles -Quadrilaterals -Three-Dimensional Figures -Investigate: Unit Cubes and Solid Figures -Investigate: Understand Volume -Investigate: Estimate Volume -Volume of Rectangular Prisms</p>	<p>5.MD.C.3: Recognize volume as an attribute of solid figures and understand concepts of volume measurement.</p> <p>5.MD.C.3a: A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.</p> <p>5.MD.C.3b: 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.</p> <p>5.MD.C.4: Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.</p> <p>5.MD.C.5a: Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.</p> <p>5.MD.C.5b: Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular</p>
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<p>-Apply Volume Formulas -Problem Solving: Make a Table -Find Volume of Composed Figures</p> <p><i>Approximate number of instructional days: 18</i></p> <p>Chapter 10</p> <p>Title: Convert Units of Measure</p> <p>-Customary Length -Customary Capacity -Weight -Multistep Measurement Problems -Metric Measures -Problem Solving: Make a Table -Elapsed Time</p> <p><i>Approximate number of instructional days: 10</i></p> <p>Chapter 9 Title: Algebra: Patterns and Graphing -Line Plots</p>	<p>prisms with whole number edge lengths in the context of solving real world and mathematical problems.</p> <p>5.MD.C.5c: Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.</p> <p>5.G.B.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 and squares are rectangles, so all squares have four right angles.</p> <p>5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.</p> <p>5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.</p> <p>5.OA.B.3: Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.</p> <p>5.MD.B.2: Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.</p> <p>5.G.A.1: Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate)</p> <p>5.G.A.2: Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate</p>
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<ul style="list-style-type: none">-Ordered Pairs-Investigate: Graph Data-Line Graphs-Numerical Patterns-Problem Solving: Solve a Simpler Problem-Graph and Analyze Relationships <p><i>Approximate number of instructional days: 10</i></p>	<p>plane, and interpret coordinate values of points in the context of the situation.</p>
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The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. They should be infused throughout all mathematics concepts and units.

- MP.1 Make sense of problems and persevere in solving them.
- MP.2 Reason abstractly and quantitatively.
- MP.3 Construct viable arguments and critique the reasoning of others.
- MP.4 Model with mathematics
- MP.5 Use appropriate tools strategically.
- MP.6 Attend to precision
- MP.7 Look for and make use of structure.
- MP.8 Look for and express regularity in repeated reasoning

Unit Description: Marking Period 1

In the first marking period, 5th grade mathematics work will focus on the following concepts: -Place Value, Multiplying Whole Numbers, Algebraic Expressions, Dividing Whole Numbers, Comparing and Ordering Decimals, Adding and Subtracting Decimals, and Problem Solving.

Standards	
Operations and Algebraic Thinking 5.OA Number and Operations in Base Ten 5.NBT	
Big Ideas: <i>Course Objectives / Content Statement(s)</i>	
Operations and Algebraic Thinking 5.OA <ul style="list-style-type: none"> • <i>Write and interpret numerical expressions.</i> Number and Operations in Base Ten 5.NBT <ul style="list-style-type: none"> • <i>Understand the place value system.</i> • <i>Perform operations with multi-digit whole numbers and with decimals to hundredths.</i> 	
Essential Questions	Enduring Understandings
<i>What provocative questions will foster inquiry, understanding, and transfer of learning?</i>	<i>What will students understand about the big ideas?</i>
<ul style="list-style-type: none"> • What different interpretations can be obtained from a particular pattern or 	Students will understand that... <ul style="list-style-type: none"> • Operations create relationships between numbers.

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<p>relationship?</p> <ul style="list-style-type: none"> • When are algebraic and numeric expressions used? • How would you describe the order of operations? • What number or symbol is needed to make number sentences true? • What is the most appropriate way of communicating a mathematical idea in a particular situation? • How can models help us understand the addition and subtraction of decimals? 	<ul style="list-style-type: none"> • The relationships among the operations and their properties promote computational fluency. • There are many ways to represent a number. • Doing the opposite operation “undoes” the previous one. • Grouping (unitizing) is a way to count, measure, and estimate.
Areas of Focus: Proficiencies (Cumulative Progress Indicators)	Examples, Outcomes, Assessments
<p>Students will:</p>	<p>Instructional Focus:</p>
<p>Operations and Algebraic Thinking 5.OA <i>Write and interpret numerical expressions.</i> 5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.</p> <p>Number and Operations in Base Ten 5.NBT <i>Understand the place value system.</i> 5.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right and $1/10^{\text{th}}$ of what it represents in the place at the left.</p> <p>5.NBT.3 Read, write, and compare decimals to thousandths.</p>	<p>enVision Math Topics 1-5</p> <ul style="list-style-type: none"> • Write number models for rectangular arrays. • Explore the relationship between multiplication and division. • Find factors of a number. • Use divisibility rules to solve problems. • Use exponential notation to name square numbers, and explore the relationship between square numbers and square roots. • Rename numbers as factor strings or products of exponents. • Write whole numbers and decimals in expanded notation. • Read, write, and order decimals to the hundredths place. • Compare order of magnitude for large numbers. • Use magnitude estimates to place the decimal point in products. • Solve whole number and decimal problems using the partial-products algorithm. • Make reasonable estimates for whole number and decimal multiplication problems. • Express probability as a percent, decimal, or fraction. • Define and classify angles according to

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<p>a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.</p> <p>b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p> <p>5.NBT.4 Use place value understanding to round decimals to any place. <i>Perform operations with multi-digit whole numbers and with decimals to hundredths.</i></p> <p>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.</p> <p>5.NBT.7 Add, subtract, multiply, and 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 the reasoning used.</p> <p>Numbers and Operations –Fractions 5.NF <i>Apply and extend previous understandings of multiplication</i></p>	<p>Sample Assessments:</p> <ul style="list-style-type: none"> • Game Record Sheets <p>Make a factor rainbow.</p> <ul style="list-style-type: none"> • Play Factor Bingo • High Number Toss • Triangle Sort • Polygon Capture • Exit Slips • What number is 10 times as large as 37,900? • Round 0.551674 to the thousandths place. • What is the nearest multiple of a power of 10 for: 76; 220; 4,892? • Student Self Assessment • Writing Prompts • How does knowing how to round decimal numbers helpful? • William had \$3.55. Sinbad had \$4.55. Sinbad said he had 10 times more money than William. Tell why you agree or disagree. • Explain the meaning of a magnitude 6.5 earthquake. • How do we estimate the reasonableness of an answer when we add, subtract, multiply or divide decimals? <ul style="list-style-type: none"> • Progress Check Written Assessment • Teacher Observation • Assign each student a fraction amount and arrange themselves to form a “human” line plot. • Students should signal “thumbs up or thumbs down” whether 676.8 is a reasonable product for 9.4×7.2 • Class Checklists • Beginning, Middle, End-of-Year Assessments <p>Interdisciplinary Connections</p>
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<p><i>and division to multiply and divide fractions.</i></p>	<ul style="list-style-type: none"> • Reading/Writing Word Problems • Math Literature List <ul style="list-style-type: none"> • The Adventures of Penrose, the Mathematical Cat by Theoni Pappas • I Hate Mathematics by Marilyn Burns and Martha Weston • Suggested Projects: <ul style="list-style-type: none"> • Create a 10-page, <i>How-To</i> book to help students learn one topic from math class. • Design a menu for a themed restaurant. Include criteria for how many of each type of item (appetizers, beverages, main dishes, etc.). Write word problems using their menu. • Technology Integration <ul style="list-style-type: none"> • Visit the Challenges index - http://www.figurethis.org/challenges • Visit related topics - http://www.ixl.com/math/grade-6 • Students can explore the math inherent in a chosen career path - http://www.mathapprentice.com/ • Real world Google Earth activities - http://www.realworldmath.org/concept-lessons.html • Global Perspectives <ul style="list-style-type: none"> • The Inch Boy adapted from Japanese fairy tale. • Convert Base Ten numbers into Egyptian, Babylonian and Mayan symbols.
<p>The skills and themes listed to the right should be reflected in the design of units and lessons for this course or content area.</p>	<p>21st Century Skills:</p> <p>Creativity and Innovation</p> <ul style="list-style-type: none"> • Design a foldable “house” for a small stuffed animal. • Make a self-portrait based on actual measurements of facial features. Alter some measurements to skew the resulting portrait. • Ask students to draw a rectangle. Use points to divide the height into 3 congruent regions and the base into 4 congruent regions. Draw a line segment to each point from the point just below the top-left corner. Shade every other section. Give the fraction of the rectangle that is shaded. <p>Critical Thinking and Problem Solving</p> <ul style="list-style-type: none"> • Compare the cell phone plans of two companies and determine the best rate for

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	<p>you.</p> <p>Communication and Collaboration Information Literacy Media Literacy Life and Career Skills</p> <p>21st Century Themes (as applies to content area): Financial, Economic, Business, and Entrepreneurial Literacy</p> <p>Suppose a multimillionaire decided to give each of his five grandchildren some part of \$100,000,000 according to the following: 1st grandchild: $0.1 \times \\$100,000,000$ 2nd grandchild: $0.1 \times \\$10,000,000$ 3rd grandchild: $0.1 \times \\$1,000,000$</p> <p>Use the pattern to predict what the fourth and fifth grandchild will receive. How much will the multimillionaire give in total? How much of the \$100,000,000 will be left?</p> <p>Civic Literacy</p> <p>Health Literacy Determine BMI: http://www.figurethis.org/challenges/c21/challenge.htm</p>
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- MP.2 Reason abstractly and quantitatively.
- MP.3 Construct viable arguments and critique the reasoning of others.
- MP.4 Model with mathematics
- MP.5 Use appropriate tools strategically.
- MP.6 Attend to precision
- MP.7 Look for and make use of structure.
- MP.8 Look for and express regularity in repeated reasoning

Unit Description: Marking Period 2

In the second marking period, 5th grade mathematics work will focus on the following concepts: Multiplying Decimals, Dividing Decimals, Adding and Subtracting Fractions and Mixed Numbers, Multiplying and Dividing Fractions and Mixed Numbers, Numerical Expressions, Patterns, and Relationships, and Problem Solving.

Standards	
Operations and Algebraic Thinking 5.OA Number and Operations in Base Ten 5.NBT Number and Operations-Fractions 5.NF	
<p>Big Ideas: <i>Course Objectives / Content Statement(s)</i></p> <p>Operations and Algebraic Thinking 5.OA</p> <ul style="list-style-type: none"> • <i>Write and interpret numerical expressions.</i> <p>Number and Operations in Base Ten 5.NBT</p> <ul style="list-style-type: none"> • <i>Understand the place value system.</i> • <i>Perform operations with multi-digit whole numbers and with decimals to hundredths.</i> <p>Number and Operations-Fractions 5.NF</p> <ul style="list-style-type: none"> • <i>Use equivalent fractions as a strategy to add and subtract fractions.</i> • <i>Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</i> 	
Essential Questions	Enduring Understandings
<i>What provocative questions will foster inquiry, understanding, and transfer of learning?</i>	<i>What will students understand about the big ideas?</i>
	Students will understand that...

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<ul style="list-style-type: none"> • How do mathematical operations relate to each other? • How do I make a reasonable estimate? • How does comparing quantities describe the relationship between them? 	<ul style="list-style-type: none"> • Numbers can represent quantity, position, location, & relationships. • Numbers can be classified by attributes. • Flexible methods of computation involve grouping numbers in strategic ways.
Areas of Focus: Proficiencies (Cumulative Progress Indicators)	Examples, Outcomes, Assessments
<p>Students will: Operations and Algebraic Thinking 5.OA</p> <ul style="list-style-type: none"> • <i>Write and interpret numerical expressions.</i> <p>5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.</p> <p>5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.</p> <p>Number and Operations in Base Ten 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.</p> <p>5.NBT</p> <ul style="list-style-type: none"> • <i>Understand the place value system</i> <p>5.NBT.7 Add, subtract, multiply, and 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 the reasoning used.</p>	<p>Instructional Focus:</p> <ul style="list-style-type: none"> • Generate equivalent names for whole numbers. • Use the partial-quotients algorithm for problems. • Use divisibility rules to identify multiples. • Use vocabulary (divisor, quotient, and remainder) • Interpret the remainder in problems. • Write number sentences that model given situations. • Find equivalent names for fractions and mixed numbers. • Solve fraction number stories using a number-line model. • Convert between fractions, mixed numbers and decimals. • Rename pairs of fractions using a common denominator. • Write numbers in standard and exponential form. • Explore place value and powers of 10. • Identify and write sentences that model number stories. • Evaluate numerical expressions using order of operations. <p>Sample Assessments:</p> <ul style="list-style-type: none"> • Exit Slips <ul style="list-style-type: none"> • Give 3 factors of 320,419. • Use expanded notation to find an equivalent name for 347.392. • If $498 \div 3 = 166$, then what is $49.8 \div 3 = ?$

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Numbers and Operations –Fractions 5.NF

Use equivalent fractions as a strategy to add and subtract fractions.

5.NF.1

Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.

5.NF.2

Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g. by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally assess the reasonableness of answers.

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

5.NF.3

Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$)

Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

5.NF.4a

Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$.

5.NF.4.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

- Game Record Sheets
- Division Dash
- Estimation Squeeze
- Name That Number
- Fraction Capture
- Student Self-Assessment
- Writing Prompts
- Explain multiplication and division rules to find equivalent fractions.
- Describe the 3 most important things you know about fractions.
- Write and solve a division problem with a two-digit divisor and (up to) a four-digit dividend. Include a picture that supports your solution.
- Math journals/Interactive Student Notebooks
- Build a math word bank.
- Draw a pattern block display to show $3 \frac{1}{6}$
- Teacher Observation
- Students should use “thumbs up, thumbs down” to signal true or false to questions such as: there are 240 minutes in 3 hours and $\frac{1}{4}$ of a day is equal to 6 hours.
- Play: Quick Questions, Family Math.
- Progress Check Written Assessment
- Class Checklists

Interdisciplinary Connections

- Interactive Student Notebooks
- Reading/writing word problems
- Math literature list:
 - Math for Smarty Pants by Marilyn Burns
 - Mathematicians Are People, Too! , Reimer.

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rectangles, and represent fraction products as rectangular areas.
 5.NF. 5
 Interpret multiplication as scaling (resizing) by
 5.NF.5b
 Explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by $1/n$

Measurement and Data 5.MD

- *Convert like measurement units within a given measurement system.*

5.MD.1

Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real world problems.

- *Represent and interpret data.*

5.MD.2

Make a line plot to display a data set of measurements in fractions of a unit ($1/2, 1/4, 1/8$). Use operations on fractions for this grade to solve problems involving information presented in line plots.

Geometry 5.G

- *Classify two-dimensional figures into categories based on their properties.*

5.G.1

Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.

5.G.2

Classify two-dimensional figures in a hierarchy based on properties.

Suggested Projects:

- Students can test different sets of numbers against the conjecture: “multiplication always makes bigger”. For which sets is it true? For which is it false?
- How many different size squares can be made on a 5 x 5 geoboard or 5 x 5 dot paper? Pegs (or dots) must be used as vertices.

Technology Integration

- Choose an appropriate webquest project from this site:

<http://www.mathgoodies.com/Webquests/sports/>

- Play the game “One to Ten” <http://theproblemsite.com>
- Working with fractions – <http://math-play.com/math-fractions-games.html>
- Students create a game for practicing fractions in SMART Notebook.
- <http://www.k-5mathteachingresources.com/5th-grade-number-activities.html>
- Make a custom timeline in Timeliner to demonstrate equivalent fractions. (See example in Timeliner)

Global Perspectives

21st Century Skills:

Creativity and Innovation

- Find the measurements of a well-known bridge and draw it to scale.
- Visit the site below.
<http://vihart.com/doodling/>

Critical Thinking and Problem Solving

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	<ul style="list-style-type: none"> • Solve which one doesn't belong problems such as: 36, 4, 9, 12, 15 4.5, 4.50, 4.05, 4.500 minute, day, month, year, <p>Communication and Collaboration</p> <ul style="list-style-type: none"> • Solve jigsaw type problems from the resources listed below. <p>Information Literacy</p> <ul style="list-style-type: none"> • How would you describe the distance between Pluto and the Sun to help a friend understand it? • Astronomers estimate that there are about 50 billion galaxies. A galaxy contains 50 to 100 billion stars. Write each of these numbers. Does it seem likely that earth is the only planet that can support life? <p>Media Literacy</p> <p>Life and Career Skills</p> <ul style="list-style-type: none"> • Useful Math Skills, <p>21st Century Themes (as applies to content area):</p> <p>Financial, Economic, Business, and Entrepreneurial Literacy</p> <p>Civic Literacy</p>
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The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. They should be infused throughout all mathematics concepts and units.

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- MP.1 Make sense of problems and persevere in solving them.
- MP.2 Reason abstractly and quantitatively.
- MP.3 Construct viable arguments and critique the reasoning of others.
- MP.4 Model with mathematics
- MP.5 Use appropriate tools strategically.
- MP.6 Attend to precision
- MP.7 Look for and make use of structure.
- MP.8 Look for and express regularity in repeated reasoning

Unit Description: Marking Period 3

In the third marking period, 5th grade mathematics work will focus on the following concepts: Data, Classifying Plane Figures, Numerical Patterns, Graphing and Analyzing Data, Volume of Solids, Units of Measure, and Problem Solving.

Standard Operations and Algebraic Thinking 5.OA Measurement and Data 5.MD Geometry 5.G	
<p>Big Ideas: <i>Course Objectives / Content Statement(s)</i></p> <p>Operations and Algebraic Thinking 5.OA</p> <ul style="list-style-type: none"> • <i>Write and interpret numerical expressions.</i> <p>Measurement and Data 5.MD</p> <ul style="list-style-type: none"> • <i>Convert like measurement units within a given measurement system.</i> • <i>Represent and interpret data.</i> • <i>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</i> <p>Geometry 5.G</p> <ul style="list-style-type: none"> • <i>Graph points on the coordinate plane to solve real-world and mathematical problems.</i> 	
Essential Questions <i>What provocative questions will foster inquiry, understanding, and transfer of learning?</i>	Enduring Understandings <i>What will students understand about the big ideas?</i>
<ul style="list-style-type: none"> • How can you collect, organize, and display data? 	<p>Students will understand that...</p> <ul style="list-style-type: none"> • Patterns and relationships can be represented numerically, graphically, symbolically,

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<ul style="list-style-type: none"> • How do we translate verbal ideas to the language of mathematics? • How can we model the ideas of mathematics? • What shortcuts can I find from looking at repeated calculations? 	<ul style="list-style-type: none"> • and verbally. • Real world situations can be represented symbolically and graphically. • Mathematical expressions represent relationships. • Number patterns and relationships can be represented using variables. • Ordered pairs show an exact location on a coordinate plane.
Areas of Focus: Proficiencies (Cumulative Progress Indicators)	Examples, Outcomes, Assessments
<p>Measurement and Data 5.MD <i>Convert like measurement units within a given measurement system.</i></p> <p>5.MD.1 Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real world problems. <i>Represent and interpret data.</i></p> <p>5.MD.2 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). <i>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</i></p> <p>5.MD.3 a. A cube with side length 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.</p>	<p>Instructional Focus:</p> <ul style="list-style-type: none"> • Use given data to create line graphs • Convert between fractions and mixed numbers. • Use ordered pairs of numbers to name, locate, and plot points in the first quadrant of a coordinate grid. • Define the base and height of a rectangular prism. • Explore the properties of rectangular prisms. • Use a formula to calculate the volume of rectangular prisms. • Investigate relationships and conversions between units of volume. • Describe patterns in relationships between the dimensions and volume of rectangular prisms. <p>Sample Assessments:</p> <ul style="list-style-type: none"> • Exit Slips: • Name three solid figures and identify similarities and differences. • Game Record Sheets: • Student Self-Assessment • Writing Prompts <ul style="list-style-type: none"> • How do we know that the length and width of a rectangle will give the area? • Assign a “free write” on the topic of measurement. Students may write anything they know on the topic. • Write about the most difficult math problem you have done this week. • Can you find five odd numbers that add up to 100? What about six odd numbers

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<p>5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.</p> <p>5.MD.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p> <p>5.MD.5 a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.</p> <p>b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.</p> <p>c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.</p>	<p>that add to 100? (No numbers are needed!)</p> <p>Teacher Observation/Signaling</p> <ul style="list-style-type: none"> • Show with “thumbs up or down” whether a number sentence such as $4 \times 2 + 1 = 12$ is true or false. • Students move to corner “a, b, c or d” to show which solution is correct to standards based multiple choice problems. <p>Instructional Strategies: Interdisciplinary Connections</p> <ul style="list-style-type: none"> • Suggested Projects: <ul style="list-style-type: none"> • Begin the investigation by telling the following story: <p style="margin-left: 20px;">Just as you decide to go to bed one night, the phone rings and a friend offers you a chance to be a millionaire. He tells you he won \$2 million in a contest. The money was sent to him in two suitcases, each containing \$1 million in one-dollar bills. He will give you one suitcase of money if your mom or dad will drive him to the airport to pick it up. Could your friend be telling you the truth? Can he make you a millionaire? Involve students in formulating and exploring questions to investigate the truth of this claim.</p> • If you ask Batman's nemesis, Catwoman, how many cats she has, she answers with a riddle: "Five-sixths of my cats plus seven." How many cats does Catwoman have? (Solution: Forty-two cats. If the number of cats is seven more than five-sixths the number of cats, then seven must be one-sixth of the number of cats. That is, Catwoman had 7×6, or forty-two, cats.) • Students collect and organize data on the number of squares and vertices in a series of figures with increasing numbers of squares. See resources below. • Students can construct a maze by drawing a diagonal from each vertex of a regular pentagon or hexagon. Write an operation and quantity on each line segment. Students should try to find the path that results in the highest and lowest values. A
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<p>Geometry 5.G <i>Graph points on the coordinate plane to solve real-world and mathematical problems.</i></p> <p>5.G.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).</p> <p>5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation.</p> <p>The following skills and themes listed to the right should be reflected in the design of units and lessons for this course or content area.</p>	<p>start number may also be included as a target value. An example can be found in activity 3 this site: http://illuminations.nctm.org/lessonDetail.aspx?id=I.252x</p> <ul style="list-style-type: none"> • Research the terms horizon line and vanishing point. Use what you learn to draw a rectangular solid in perspective. Try other solids such as a block letter “X”. • Your tibia is your shinbone. The following rule is sometimes used to predict the height of an adult when the length of the person’s tibia is known. Measurements are in inches. $\text{Height} = (2.6 * \text{Length of Tibia}) + 25.5$ Do you think this rule is accurate? Do your own research and prepare a written response to the question. Include a line plot of data you have collected. <p>Technology Integration</p> <ul style="list-style-type: none"> • http://nlvm.usu.edu • Try Fractions - Rectangle Multiplication – Visualize and practice multiplying fractions using an area representation • This website offers exploration, practice and crafts. http://www.mathcats.com • Use InspireData to create line graphs • Plot data on Excel graph and determine mathematical patterns. Use these patterns to create mathematical shortcuts. • Create blog post explaining mathematical shortcuts created by the students. • Students can create iMovie on angles, lines, line segments, perimeter, area, and volume in the real world. • Students can manipulate figures @ Mathisfun.com/geometry/quadrilaterals • Inspire Data – Exploring Probability Lesson <p>Media Literacy Integration</p> <p>Global Perspectives 21st Century Skills: Creativity and Innovation</p>
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- Draw a picture to help you remember common kitchen units of capacity such as cups, pints and quarts.
- Kaleidocycles (see resources below)

Critical Thinking and Problem Solving

- **10 Digit Number**
Write a ten-digit number so that the first digit indicates how many 0s are in the number, the second digit indicates how many 1s are in the number, the third digit indicates the number of 2s, etc. (Solution: 6,210,001,000).
- **Rectangular Solids**
How many rectangular solids are possible with a volume of 100 cubic meters and sides of integral dimensions? (Solution: 8. The solutions by dimension are (1, 1, 100), (1, 2, 50), (1, 4, 25), (1, 5, 20), (1, 10, 10), (2, 2, 25), (2, 5, 10), and (4, 5, 5)).

Communication and Collaboration

Information Literacy

Media Literacy

Life and Career Skills

21st Century Themes (as applies to content area):

Financial, Economic, Business, and
Entrepreneurial Literacy

Civic Literacy

- **Build a City:** Students build a model of a city made from patterns that they draw on graph paper. Students should assign costs to their buildings based on the amount of paper used.

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	Health Literacy <ul style="list-style-type: none">• Are you taller in the morning or at night? How big is the difference? Find out by measuring members of your family. Research why our height changes.
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Math Enrichment Ideas

Volume Dogs

Students create a 3-dimensional dog out of centimeter graph paper, then complete a chart with the measurements of each dog (head, legs, body) and compare the volumes.

Measurement Theme Book

Think of a theme.....for example: a sport, movie, TV Show, animals, cartoon characters or even a famous celebrity. Create your own “Units of Measurement Theme Book” with fun measurement connections and illustrations that use 10-20 different measurement units. Each unit is represented with an example from your theme. Each page in your book will have a statement explaining how something in your theme could be associated with that unit of measurement followed by an illustration. Add a decorative title page. (examples from sorcerer’s stone: Harry Potter’s wand is 11 inches, Hermione's rucksack weighed 35 pounds...)

Missing Mathematician Poster

choose a mathematician that is known for something important in the world of math. You will make a “Missing Mathematician Poster” that will be displayed in the classroom. The following information should be included on the poster: Full name of mathematician

- Where was the mathematician was last seen? (Where last conducted research)
- Description of the mathematicians achievements – Why is the mathematician famous? List their top three achievements.
- A quote from the mathematician.
- Reward amount for finding the mathematician.
- Slogan of why you want the mathematician found – Example: Isaac Newton “Calculus called...it wants it’s mathematician back.”
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Concept or Chapter	Resources for Enrichment
<p>First Day Activity: In the 10 cells shown here, you are to inscribe a 10-digit number such that the digit in the first cell tells how many zeros are in the entire 10-digit number, the digit in the cell marked "1" tells how many 1's are in the number, and so on. Thus, if the "4" cell has a 2 in it, then there are two 4's somewhere in the 10-digit number.</p> <p style="text-align: center;"> 0 1 2 3 4 5 6 7 8 </p> 	<p>http://ohiorc.org/for/math/stella/setintro/problem.aspx?id=106#</p> <p>Non-routine problems such as these help students become mathematical thinkers and give practice figuring out what to do when they are “stuck”.</p>
<p>5.OA.A1, 5.OA.A2, 5.NBT.A4, Using a receipt from a grocery store, students estimate the cost of the bill.</p>	<p>Build a collection of grocery store receipts for students to draw from.</p>
<p>5.MD.C3, 5.MD.C4, 5.MD.C5 Build a cubic meter using newspaper & tape. Calculate the volume for various units. Students can then try other polyhedra to compose “forts”.</p> <p>Students design and create cereal boxes to solve a real world manufacturing problem.</p>	<p>http://www.k-5mathteachingresources.com/support-files/build-a-cubic-meter.pdf</p> <p>http://www.modernparentsmessykids.com/2012/06/play.html</p> <p>http://betterlesson.com/lesson/580846/design-a-cereal-box-volume</p>
<p>5.OA.B3 Students work individually or with a partner to complete an investigation about paper tearing.</p>	<p>http://mathsolutions.com/documents/9781935099321_ATM4Ereproducibles.pdf reproducible #17 (attach?)</p>
<p>5.G.A1 A fun, “get to know you” activity any time of the year.</p>	<p>http://blog.mrmeyer.com/2013/personality-coordinates-icebreaker/</p>

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Concept or Chapter	Resources for Support
Beginning of the Year Activities	Pose question to class: What do we use math for in life? What do you want to be when you grow up? How would use math in that career? Shared writing activity: What do good mathematicians do: http://2.bp.blogspot.com/-0AP6BHAFEjc/UjTgCmvFVLI/AAAAAAAAAB2g/6WPcbxuq0QI/s1600/photo-34.JPG
Chapter 1: Place Value, Multiplication, & Expressions	Teaching Strategy: Turtlehead method http://1.bp.blogspot.com/-b0S1W_nNyJA/UnA0z_01NnI/AAAAAAAAAVE/Dhq537SDfv8/s1600/2+Digit+Times++2+Digit+Turtlehead+Method+Anchor+Chart.jpeg Foldable for math notebook: http://www.math-aids.com/cgi/pdf_viewer_7.cgi?script_name=pemdas_rules.pl&x=103&y=21
Chapter 2: Divide Whole Numbers	Center: http://www.k-5mathteachingresources.com/support-files/estimate-the-quotient-ver.2.pdf Game: http://www.k-5mathteachingresources.com/support-files/division-strategy-partial-quotients-ver.3.pdf
Chapter 3: Add and Subtract Decimals	Game: http://littleroomunderthestairs.blogspot.ca/2013/09/decimal-activities.html Center: https://www.teachervision.com/decimals/lesson-plan/3032.html
Chapter 4: Multiply Decimals	Game: http://www.lauracandler.com/filecabinet/math/PDF/buzzing.pdf Center: https://www.teacherspayteachers.com/Product/Multiplying-Decimals-Scoot-235537

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Chapter 5: Divide Decimals	Game: http://www.fortheloveofteachingmath.com/wp-content/uploads/2012/03/Dividing-Decimals-Board-Game.pdf
Chapter 6: Add and Subtract Fractions with Unlike Denominators	<p>Game: http://www.k-5mathteachingresources.com/support-files/the-wishing-club-1.pdf</p> <p>Center: http://www.k-5mathteachingresources.com/support-files/magicsquaresadditionfractions.pdf</p> <p>Text Support: The Wishing Club: A Story About Fractions by Donna Jo Napoli</p>
Chapter 7: Multiply Fractions	<p>Game: http://www.k-5mathteachingresources.com/support-files/fraction-x-fraction-word-problems.pdf</p> <p>Center: http://www.k-5mathteachingresources.com/support-files/area-word-problems-fractional-side-lengths-5nf4b.pdf</p> <p>Reference Sheet for Math notebook: http://classroomcaboodle.com/wp-content/uploads/2014/01/multiplying-fractions-anchor-chart-2.png</p>
Chapter 8: Divide Fractions	<p>Reference sheet for Math notebook: http://classroomcaboodle.com/wp-content/uploads/2014/01/dividing-fractions-anchor-chart-2.png</p> <p>Computer Center/Game: https://campus.mangahigh.com/en-us/px/22/0/0</p>
Chapter 9: Algebra: Patterns and Graphing	Game: https://www.teacherspayteachers.com/Product/Coordinate-Planes-and-Graphing-1107845

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	Center: http://www.k-5mathteachingresources.com/support-files/fractions-on-a-line-plot.pdf
Chapter 10: Convert Units of Measure	Center: http://www.k-5mathteachingresources.com/support-files/comparing-metric-units.pdf
Chapter 11: Geometry and Volume	Centers: http://www.k-5mathteachingresources.com/support-files/quadrilateral-criteria.pdf http://www.k-5mathteachingresources.com/support-files/quadrilateral-hierarchy.pdf Foldable for Math notebook: http://mathfoldables.blogspot.com/2012/03/rectangular-prisms.html