**Grade 4 Math Scope and Sequence**

| Summary of the Year | Overview |
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| In Grade 4, instructional time should focus on three critical areas: (1) Number Sense including: developing understanding and fluency with place value and operations of multi-digit whole (addition, subtraction, multiplication and division); (2) Fractions including: developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, multiplication of fractions by whole numbers, and relating unit fractions to tenth and hundredth decimals; (3) Geometry and Measurement including: understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry, as well as algebraic thinking with area and perimeter. | **OPERATIONS AND ALGEBRAIC THINKING** <br> Represent and solve problems involving multiplication and division. Understand properties of multiplication and the relationship between multiplication and division. <br> Multiply and divide within 100. <br> Solve problems involving four operations, and identify and explain patterns in arithmetic. <br> **NUMBER AND OPERATIONS IN BASE TEN** <br> Use place value understanding and properties of operations to perform multi-digit arithmetic. <br> **NUMBER AND OPERATIONS—FRACTIONS** <br> Develop understanding of fractions as numbers. <br> **MEASUREMENT AND DATA** <br> Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. <br> Represent and interpret data. <br> Geometric measurement: understand concepts of area and relate area to multiplication and to addition. <br> Geometric measurement: recognize perimeter as an attribute o**f plane figures and distinguish between linear and area measures.** <br> **GEOMETRY** <br> Reason with shapes and their attributes. |

| Year-at-a-Glance | STANDARDS FOR MATHEMATICAL PRACTICE: |
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| **Marking Period 1**<br>*Place Value and Operations with Whole Numbers (Addition, Subtraction, Multiplication  (Chapters 1- 4)<br><br>**Marking Period 2**<br>* Operations with Whole Numbers (Division)/Fractions and Decimals/Geometry: Two Dimensional Figures (Topics 5-10)<br><br>**Marking Period 3**<br>*Geometry and Measurement and Data Concepts (Topics 10-13) | 1. Make sense of problems and persevere in solving them.<br>2. Reason abstractly and quantitatively.<br>3. Construct viable arguments and critique the reasoning of others.<br>4. Model with mathematics.<br>5.Use appropriate tools strategically.<br>6.Attend to precision.<br>7.Look for and make use of structure.<br>8. Look for and express regularity in repeated reasoning. |

<mark style="background-color: #00FF00">Major</mark> <mark style="background-color: #00FFFF">Supporting</mark> <mark style="background-color: #FFFF00">Additional</mark> (identified by PARCC Model Content Framework)

| Marking Period | GO Chapter/Title | Standards |
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| 1 | **Chapter 1** <mark style="background-color: #00FF00">Place Value; Addition and Subtraction to One Million</mark><br><br>*Approximate number of instructional days: 12* | CCSS.Math.Content.4.NBT.A.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. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*<br><br>CCSS.Math.Content.4.NBT.A.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.<br><br>CCSS.Math.Content.4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place. |
| 1 | **Chapter 2** <mark style="background-color: #FFFF00">Multiplication by One Digit Numbers</mark><br><br>*Approximate number of instructional days: 13* | CCSS.Math.Content.4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.<br><br>CCSS.Math.Content.4.OA.A.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.[1]<br><br>CCSS.Math.Content.4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.<br><br>CCSS.Math.Content.4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify |

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| | | apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.* |
| 1 | **Chapter 3** <mark>Multiply by 3 Digit Numbers</mark><br><br>***Approximate number of instructional days: 10*** | CCSS.Math.Content.4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place.<br><br>CCSS.Math.Content.4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.<br><br>CCSS.Math.Content.4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.<br><br>CCSS.Math.Content.4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.* |

| 1 | **Chapter 4** <br> Divide by 1 Digit Numbers <br><br> *Approximate number of instructional days: 14* | CCSS.Math.Content.4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-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. <br><br> CCSS.Math.Content.4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. |
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| 2 | **Chapter 5** <br> Factors, Multiples, and Patterns <br><br> *Approximate number of instructional days: 9* | CCSS.Math.Content.4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. <br><br> CCSS.MATH.CONTENT.4.OA.B.4 <br> Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. |
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| 2 | **Chapter 6** <br> Fraction Equivalence and Comparison <br><br> *Approximate number of instructional days: 2* | CCSS.MATH.CONTENT.4.NF.A.1 <br> Explain why a fraction $a/b$ is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. <br><br> CCSS.MATH.CONTENT.4.NF.A.2 <br> Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. |

| 2 | **Chapter 7** <br> Add and Subtract Fractions <br> *Approximate number of instructional days: 14* | CCSS.MATH.CONTENT.4.NF.B.3.A <br> Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. <br><br> CCSS.MATH.CONTENT.4.NF.B.3.B <br> Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction |
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| | | model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*<br><br>CCSS.MATH.CONTENT.4.NF.B.3.C<br>Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.<br><br>CCSS.MATH.CONTENT.4.NF.B.3.D<br>Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. |
| 2 | **Chapter 8**<br><mark style="background-color:lime">Multiply Fractions by Whole Numbers</mark><br><br>***Approximate number of instructional days: 9*** | CCSS.MATH.CONTENT.4.NF.B.4<br>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.<br><br>CCSS.MATH.CONTENT.4.NF.B.4.A<br>Understand a fraction $a/b$ as a multiple of $1/b$. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).*<br><br>CCSS.MATH.CONTENT.4.NF.B.4.B<br>Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*<br><br>CCSS.MATH.CONTENT.4.NF.B.4.C<br>Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?* |
| 2 | **Chapter 9**<br><mark style="background-color:yellow">Relate Fractions and</mark> | CCSS.MATH.CONTENT.4.NF.C.5<br>Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this |

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| | Decimals<br><br>***Approximate number of instructional days: 11*** | technique to add two fractions with respective denominators 10 and 100.2 *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*<br><br>CCSS.MATH.CONTENT.4.NF.C.6<br>Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*<br><br>CCSS.MATH.CONTENT.4.NF.C.7<br>Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.<br><br>CCSS.MATH.CONTENT.4.MD.A.2<br>Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. |

| 3 | **Chapter 10** ==Two Dimensional Figures== *Approximate number of instructional days: 10* | CCSS.MATH.CONTENT.4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. CCSS.MATH.CONTENT.4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. CCSS.MATH.CONTENT.4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. CCSS.MATH.CONTENT.4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.* |
| 3 | **Chapter 11** ==Angles== *Approximate number of instructional days: 8* | CCSS.MATH.CONTENT.4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: CCSS.MATH.CONTENT.4.MD.C.5.A An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. |

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| | | CCSS.MATH.CONTENT.4.MD.C.5.B<br>An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.<br><br>CCSS.Math.Content.4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.<br><br>CCSS.Math.Content.4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.<br><br>CCSS.Math.Content.4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.<br><br>CCSS.Math.Content.4.MD.C.5a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.<br><br>CCSS.Math.Content.4.MD.C.5b An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.<br><br>CCSS.Math.Content.4.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.<br><br>CCSS.Math.Content.4.MD.C.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. |
| 3 | **Chapter 12**<br><mark>Relative Sizes of</mark> | CCSS.MATH.CONTENT.4.MD.A.1<br>Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, |

| | Measurement Units<br><br>*Approximate number of instructional days: 15* | ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*<br><br>CCSS.MATH.CONTENT.4.MD.A.2<br>Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.<br><br>CCSS.MATH.CONTENT.4.MD.B.4<br>Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.* |
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| 3 | **Chapter 13**<br>Algebra: Area and Perimeter<br><br>*Approximate number of instructional days: 11* | CCSS.MATH.CONTENT.4.MD.A.3<br>Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.* |
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*Updated August 2015*

**Summit Public Schools          Summit, New Jersey**
**Grade Level: Grade 4**
**Content Area: Math**

**Unit Description: Marking Period 1**

In the first marking period of 4ᵗʰ grade, mathematics will focus on the following: Place Value and Operations with Whole Numbers, Addition, Subtraction, Multiplication

| **Standard** |
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| Operations and Algebraic Thinking 4.OA |
| Number and Operations in Base Ten 4.NBT |
| Measurement and Data 4.MD |
| Geometry 4.G |

**Big Ideas:** *Course Objectives / Content Statement(s)*
Operations and Algebraic Thinking     4.OA
- *Use the four operations with whole numbers to solve problems.*
- *Gain familiarity with factors and multiples.*
- *Generate and analyze patterns.*
Number and Operations in Base Ten   4.NBT
- *Generalize place value understanding for multi-digit whole numbers.*
- *Use place value understanding and properties of operations to perform multi-digit arithmetic.*

| **Essential Questions** <br> *What provocative questions will foster inquiry, understanding, and transfer of learning?* | **Enduring Understandings** <br> *What will students understand about the big ideas?* |
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| • What are properties of whole numbers? <br> • How does the position of a digit in a number affect its value? <br> • How is thinking algebraically different than thinking arithmetically? | Students will understand that… <br> • Generalize place value understanding for multi-digit whole numbers. <br> • Use place value understanding and properties of operations to perform multi-digit arithmetic. <br> • Use the four operations with whole numbers to solve problems. <br> • Use place value understanding and properties of operations to perform multi-digit arithmetic. <br> • Gain familiarity with factors and multiples. |

**Summit Public Schools          Summit, New Jersey**
**Grade Level: Grade 4**
**Content Area: Math**

| Areas of Focus: Proficiencies (CCSS) | Examples, Outcomes, Assessments |
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| | • Generate and analyze patterns. |
| Students will: | Instructional Focus: |
| Operations and Algebraic Thinking    4.OA<br><br>*Use the four operations with whole numbers to solve problems.*<br><br>4.OA.1    Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.  Represent verbal statements of multiplicative comparisons as multiplication equations.<br><br>4.OA.3    Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.  Represent these problems using equations with a letter standing for the unknown quantity.  Assess the reasonableness of answers using mental computation and estimation strategies including rounding.<br><br>*Gain familiarity with factors and multiples.*<br><br>4.OA.4    Find all factor pairs for a whole number in the range 1-100.  Recognize that a whole number is a multiple of each of its factors.  Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number.  Determine whether a given whole number in the | • Extend numerical patterns.<br>• Give equivalent mathematical expressions for whole numbers.<br>• Insert grouping symbols to make number sentences true.<br>• Read and write numbers up to 1,000,000,000; identify the values of digits.<br>• Use and describe patterns to find sums.<br>• Add and subtract multi-digit whole numbers.<br>• Solve open sentences.<br>• Solve multi-digit addition problems; choose an appropriate paper-and-pencil algorithm to solve multi-digit addition problems.<br>• Solve multi-digit subtraction problems; choose an appropriate paper-and-pencil algorithm to solve multi-digit subtraction problems.<br>• Solve multiplication and division problems.<br>• Use words and symbols to describe and write rules for number patterns.<br>• Identify and use patterns in the Multiplication/Division Facts Table.<br>• Find factors and multiples of numbers.<br>• Use multiplication facts to generate related division facts.<br>• Determine whether a number sentence is true or false.<br><br>Sample Assessments:<br>• Exit slips<br>   o   Write five equivalent names for 54.<br>   o   Write the largest number you can, using the digits 4, 2, 7, and |

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range 1-100 is prime or composite.

*Generate and analyze patterns.*

4.OA.5      Generate a number or shape pattern that follows a given rule.  Identify apparent features of the pattern that were not explicit in the rule itself.

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Number & Operations in Base Ten   4.NBT

*Generalize place value understanding for multi-digit whole numbers.*

4.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.

4.NBT.2      Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form.  Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

4.NBT.3      Use place value understanding to round multi-digit whole numbers to any place.

*Use place value understanding and properties of operations to perform multi-digit arithmetic.*

4.NBT.4      Fluently add and subtract multi-digit whole numbers using the standard algorithm.

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0.  Use each digit only once.
- o  736 + 645 = _____
- o  Fill in the blanks with two three-digit numbers to make a true number sentence:

  _____ - _____ = 345
- o  528 – 263 = _____
- o  List all of the factors of 18.
- o  List four multiples of 7.
- o  List the multiplication/division fact family for the numbers 5, 6, and 30.
- o  Write true or false for the following number sentence: 42 – 15 = 27.
- o  Write true or false for the following number sentence: 114 + 66 = 360/2

- Student self-assessment/ Partner assessment
- Writing prompts
  - o  Jenny was asked to list all of the *multiples* of 4.  Can you please explain why this is impossible?  Could she list all of the *factors* of 4?
  - o  Chang was buying treats for his birthday party.  He asked his mom and dad, "How much is 7 times 7 plus 4?"  His mom said "53," and his dad said "77."  How did they arrive at different answers?  Who is correct?
- Math journals/Interactive Student Notebooks
- Record sheets
- Teacher observation
- Beginning, Middle, End-of-Year assessments
- Progress check written assessment
- Class checklists
- Fast Fact Tests and Competitions

- Around the World Multiplication Game

Interdisciplinary Connections
- Interactive Student Notebooks
- Reading/writing word problems
- Suggested Projects:
  Create a census map: Follow the 2015 census and or use 2010 US
  Census https://www.census.gov/dmd/www/schmat1.html Guide
  Students label cities and state population and write facts about the
  differences in population across the country

Technology Integration
- Steps to Solving Word Problems -
  http://school.nettrekker.com/goExternal?np=/external.ftl&pp=/erro
  r.ftl&evlCode=249724&productName=school&HOMEPAGE=E
- http://school.nettrekker.com/goExternal?np=/external.ftl&pp=/erro
  r.ftl&evlCode=319435&productName=school&HOMEPAGE=E
- Use Comic Life to create word problems and word problem how-to
  sheets.
- Anglemania!
  http://school.nettrekker.com/goExternal?np=/external.ftl&pp=/erro
  r.ftl&evlCode=578233527780793372R3oYQ&productName=school&
  HOMEPAGE=E
- Funbrain – Tic Tac Toe Squares (Multiplication)
  http://www.funbrain.com/cgibin/ttt.cgi?A1=s&A2=13&A3=0&INS
  TRUCTS=1
- Batter's Up Baseball
  http://www.prongo.com/math/index.html
- PBS Kids – Number Sense
  http://pbskids.org/cyberchase/math-games/number

sense/
- Around the World in 80 Seconds!
  http://www.missmaggie.org/scholastic/roundtheworld_eng_launcher.html
- Math Goodies – Interactive Factor Tree Games
  http://www.mathgoodies.com/factors/prime_factors.htm
- Kids Games HQ – Factor Feeder
  http://kidsgameshq.com/factor-feeder

Media Literacy Integration
- PBS Kids – Don't Buy It, Buying Smart
  http://pbskids.org/dontbuyit/buyingsmart/hotorsnot.html
- Partnership for 21st Century Skills (p. 22-23)
  http://www.p21.org/storage/documents/P21_Math_Map.pdf

Global Perspectives
- Investigate Pascal's triangle and its origin in France, as well as its significance in mathematics.
- Investigate monetary equivalences to the U.S. dollar in different countries.
- Investigate Population differences across the US

21st Century Skills:
  Creativity and Innovation
- Create a song to teach a friend about the Partial-Sums Algorithm or Column Addition.
- Create rhymes to remember Multiplication Facts: "I eight and I eight until I got sick on the floor, Eight x Eight is SIXTY-FOUR!"

|  | Critical Thinking and Problem Solving<br>• Take a census of your school.  What differences do you find between grade levels? Which grade is the largest? Which grade is the smallest?<br><br>Communication and Collaboration<br><br>Information Literacy<br><br>Life and Career Skills<br>• What jobs use these skills?<br>• How do your parents use these skills?<br>• What do you want to be when you grow up?  How will MATH be used in that job?<br><br>21st Century Themes (as applies to content area):<br>Financial, Economic, Business, and Entrepreneurial Literacy<br><br>Civic Literacy<br><br>Health Literacy |
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**Unit Description: Marking Period 2**

In the second marking period of 4th grade, mathematics will focus on the following: Operations with Whole Numbers (Division), Fractions and Decimals

| Standard |
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| Operations and Algebraic Thinking 4.OA |
| Number and Operations in Base Ten 4.NBT |
| Number and Operations – Fractions 4.NF |
| Measurement and Data 4.MD |

**Big Ideas:** *Course Objectives / Content Statement(s)*
Operations and Algebraic Thinking    4.OA
- *Use the four operations with whole numbers to solve problems.*

Number and Operations in Base Ten   4.NBT
- *Generalize place value understanding for multi-digit whole numbers.*
- *Use place value understanding and properties of operations to perform multi-digit arithmetic.*

Number and Operations – Fractions   4.NF
- *Understand decimal notation for fractions, and compare decimal fractions.*
- *Developing an understanding of fraction equivalence, adding and subtracting fractions with like denominators, and multiplication of fractions with whole numbers*

| Essential Questions<br>*What provocative questions will foster inquiry, understanding, and transfer of learning?* | Enduring Understandings<br>*What will students understand about the big ideas?* |
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| <ul><li>How do I know which computational method (mental math, estimation, paper-and-pencil, and calculator) to use?</li><li>How important are estimations in real-life situations?</li><li>How can decimals and fractions be applied in the real world?</li><li>What benchmark fractions do I already use in real life</li></ul> | Students will understand that…<ul><li>The relationships among the operations and their properties promote computational fluency.</li><li>In certain situations, an estimate is as useful as an exact answer.</li><li>There can be different strategies to solve a problem, but some are more effective and efficient than others.</li><li>Place value is based on groups of ten.</li></ul> |

| and how can these help me understand fractions in math? | • Decimals express a relationship between two numbers.<br>• Patterns can be found in many forms.<br>• Fractions represent a relationship between numbers, parts, and wholes |
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| **Areas of Focus: Proficiencies<br>(CCSS)** | **Examples, Outcomes, Assessments** |
| Students will: | Instructional Focus: |

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| Operations and Algebraic Thinking    4.OA<br><br>*Use the four operations with whole numbers to solve problems.*<br><br>4.OA.3    Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.  Represent these problems using equations with a letter standing for the unknown quantity.  Assess the reasonableness of answers using mental computation and estimation strategies including rounding.<br><br>*Gain familiarity with factors and multiples.*<br><br>4.OA.4    Find all factor pairs for a whole number in the range 1-100.  Recognize that a whole number is a multiple of each of its factors.  Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. | • Read and write decimals through thousandths.<br>• Order decimals through thousandths on a number line.<br>• Rename fractions with 10 and 100 in the denominator as decimals.<br>• Estimate sums and differences of decimals; explain the strategies used.<br>• Compare whole numbers and decimals.<br>• Add and subtract decimals to the hundredths place.<br>• Judge the reasonableness of solutions to decimal addition and subtraction problems.<br>• Add and subtract decimals through hundredths in the context of money.<br>• Identify and use patterns in the Multiplication/Division Facts Table.<br>• Find factors and multiples of numbers.<br>• Use multiplication facts to generate related division facts.<br>• Determine whether a number sentence is true or false.<br><br>• Work with fractions.<br><br>• Compare and order fractions |
| Number & Operations in Base Ten   4.NBT<br><br>*Generalize place value understanding for multi-digit whole numbers.*<br><br>4.NBT.1    Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents | • Generate equivalent fractions<br><br>• Add and subtract fractions with like denominators |

in the place to its right.

4.NBT.2    Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form.  Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

4.NBT.3    Use place value understanding to round multi-digit whole numbers to any place.

*Use place value understanding and properties of operations to perform multi-digit arithmetic.*

4.NBT.5    Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.  Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Number and Operations – Fractions  4.NF

*Understand decimal notation for fractions, and compare decimal fractions.*

4.NF.6    Use decimal notation for fractions with denominators 10 or 100.

4.NF.7    Compare two decimals to hundredths by reasoning about their size.  Recognize that comparisons are valid only when the two decimals refer to the same whole.  Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

Measurement and Data          4.MD

- Find equivalent fractions

- Write fractions as sums

- Rename fractions as mixed numbers

- Multiply fractions with whole numbers

Sample Assessments:
- Exit slips

   o List the following decimals in order from least to greatest: 0.12, 0.012, 0.00012, 0.02, .0124.
   o Write 10 equivalent fractions to 1/2, ¼, and 1/3
   o Add and rename 3/8 + 5/8 =
   o ¼ * 8
   o Explain why the product is smaller than the whole number in 8 x ¼
   o
   o Write the fraction equivalent for 0.7.
   o Insert <, =, or > to describe the relationship between the two numbers:
      0.3 _____ 0.12
   o Insert <, =, or > to describe the relationship between the two numbers:
      0.63 _____ 0.9
   o Solve: $0.45 - $0.23 = _____
   o Please write the following in standard notation:
      587 thousandths

| | |
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| *Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.*<br><br>4.MD.2    Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.  Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. | o   Insert <, =, or > to describe the relationship between the two numbers:<br>0.073 _____ 0.73<br>o   Estimate the following sum:<br>884 + 631 = _____.<br>o   43 x 70 = _____<br>o   _____ = 232 x 47<br>o   Write a number between 5,893,652 and 6,000,000.<br>o   Write 10,000 as 10 to a power.<br>o   Round 19,763 to the nearest 1,000.<br>o   Write a number that is halfway between 21,000 and 21,500. |

|  |  |
|---|---|
| Number and Operations – Fractions  4.NF<br><br>*Extend understanding of fraction equivalence and ordering.*<br><br>4.NF.1    Explain why a fraction $a/b$ is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.  Use this principle to recognize and generate equivalent fractions.<br><br>4.NF.2    Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2.  Recognize that comparisons are valid only when the two fractions refer to the same whole.  Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.<br><br>*Build fractions from unit fractions by applying and extending previous* | • Game record sheets<br>• Student self-assessment/ Partner Assessments<br>• Writing prompts<br>   o   Greg had 48 pencils that he wanted to share with the 20 students (which included him) in his class.  He divided 48 by 20 and got a quotient of 2.4.  Why doesn't his answer make sense?<br>   o   Arjun thought that 0.4 was less than 0.25.  Explain or draw pictures to help Arjun see that 0.4 is more than 0.25.<br>   o   Betty's mom's gas tank can hold 12 gallons of gas.  When they stopped for gas, her mom only had enough money to buy 7.6 gallons of gas.  About how many more gallons can her tank hold?  Explain how you arrived at your solution.<br>   o   Bobby solved: 0.34 + 0.4 and got 0.38 as the sum.  Explain the error that he made.  Then, show him how to correct it by solving the problem.<br>   o   Tamra and Jackie are arguing over a math problem.  Tamra is convinced that 0.73 = 0.073.  On the other hand, Jackie argues that 0.73 > 0.073.  Who is right?  How do you know?<br>   o   8 packs of gum cost $0.70 each.  What is the total cost? |

*understandings of operations on whole numbers.*

4.NF.3    Understand a fraction $a/b$ with
$a > 1$ as a sum of fractions $1/b$.
a. Understand addition and subtraction of fractions
as joining and separating parts referring to the same
whole.
b. Decompose a fraction into a sum of fractions
with the same denominator in more than one way,
recording each decomposition by an equation.
Justify decompositions, e.g., by using a visual
fraction model.
c. Add and subtract mixed numbers with like
denominators, e.g., by replacing each mixed number
with an equivalent fraction, and/or by using
properties of operations and the relationship
between addition and subtraction.
d. Solve word problems involving addition and
subtraction of fractions referring to the same whole
and having like denominators, e.g., by using visual
fraction models and equations to represent the
problem.

4.NF.4    Apply and extend previous understandings of
multiplication to multiply a fraction by a whole
number.
a. Understand a fraction $a/b$ as a multiple of $1/b$.
b. Understand a multiple of $a/b$ as a multiple of $1/b$,
and use this understanding to multiply a fraction by
a whole number.
c. Solve word problems involving multiplication of a
fraction by a whole number, e.g., by using visual

o Jeremiah knows that 7 x 8 = 56.  However, he is stuck when
his teacher gives him the following problem to solve for
homework: 70 x 80.  Can you please help him use his
knowledge of basic facts to solve the problem above?
o If 1 centimeter on a map represents 200 miles, what do 6.5
centimeters represent?  Explain your reasoning.
o Solve the following problem using the Partial-Products
Multiplication Algorithm and Standard Algorithm 37 x 8.
Which method do you prefer?  Why?
o When would it be helpful to write a number in exponential
notation as opposed to expanded notation?

- Math journals/Interactive Student Notebooks
- Record sheets
- Teacher observation
- Beginning, Middle, End-of-Year assessments
- Progress check written assessment
- Class checklists

Interdisciplinary Connections
- Interactive Student Notebooks
- Reading/writing word problems
- Math literature list (see attached)
- Suggested Projects:
  o Students plan a party for the Super Bowl.  They must stay
  within a certain budget, based on the number of people they
  plan on inviting.  They will use decimal addition and/or
  multiplication in order to compute the total cost.
  o Students obtain a bank statement from one of their parents, in
  which only the deposits, withdraws, and principal amount of

fraction models and equations to represent the problem.

*Understand decimal notation for fractions, and compare decimal fractions.*

4.NF.6      Use decimal notation for fractions with denominators 10 or 100.

4.NF.7 Compare two decimals to hundredths by reasoning about their size.  Recognize that comparisons are valid only when the two decimals refer to the same whole.  Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

money invested are displayed.  They must add/subtract, using decimals in order to compute how much money is remaining in their parent's account.

o  Students are given a 10 x 10 blank grid.  They must use at least six colors to create a pattern and/or tessellation on the grid.  Then, they will calculate the fraction, decimal, and percent of each color, displayed on the grid.

o  Students are given a menu from a restaurant in Summit.  They must compute how much it would cost their entire family to go out to dinner, including the tip.  They will need to use extended math facts to multiply by .10 and double it, in order to calculate a 20% tip. (For enrichment: Have students calculate the tax, as well.)

o  Students keep track of a baseball player's batting average over time.  Then, they chart the player's progress over time by computing the differences, using decimals to thousandths.

o  What difference, if any, does it make if the decimal is placed before the zero, or after the zero?

o  Give at least three examples of jobs, in which employees encounter decimals on a daily basis.

o  Students are given a limited amount of food (math manipulatives) to divide between their classmates evenly. What fraction of each iten will classmates receive?

Technology Integration
- BrainPop – Decimals
- SMART - http://school.nettrekker.com/goExternal?np=/external.ftl&pp=/error.ftl&evlCode=368565&productName=school&HOMEPAGE=E
- Gamequarium – Death to Decimals http://www.mrnussbaum.com/deathdecimals.htm

|  | <ul><li>BBC Education – Builder Ted<br>http://www.bbc.co.uk/education/mathsfile/shockwave/games/laddergame.html</li><li>Fraction/Decimal Match-Up<br>http://www.hbschool.com/activity/con_math/con_math.html</li><li>Multiplication.com – Flying High<br>http://www.multiplication.com/games/play/flying-high</li><li>Multiplication.com – Cone Crazy<br>http://www.multiplication.com/games/play/cone-crazy</li></ul><br>Media Literacy Integration<ul><li>PBS Kids – Don't Buy It, Buying Smart<br>http://pbskids.org/dontbuyit/buyingsmart/hotorsnot.html</li><li>Partnership for 21st Century Skills (p. 22-23)<br>http://www.p21.org/storage/documents/P21_Math_Map.pdf</li></ul><br>Global Perspectives<ul><li>Investigate tax systems in other countries (See:<br>http://en.wikipedia.org/wiki/List_of_countries_by_tax_rates)</li><li>Research the use of the metric system as a standard unit of measure in many countries.</li></ul><br>21st Century Skills:<br> Creativity and Innovation<ul><li>Create a new unit to add to the metric system. Explain how to make conversions using the new unit.</li><li>Create a menu for your own restaurant and include reasonable prices for each item. Then, try to figure out how much revenue you will make over the course of a week if 50 people eat at your restaurant each day for 7 days.</li></ul> |

Critical Thinking and Problem Solving
- Use a Venn diagram to compare/contrast the Partial-Products Algorithm and the
- Write a "How To" sheet for the Partial-Products Algorithm and the Standard Algorithm, which the teacher can photo-copy for the kids in your class to use for reference.

Communication and Collaboration

Information Literacy

Life and Career Skills
- What jobs use these skills?
- How do your parents use these skills?

21$^{st}$ Century Themes (as applies to content area):
Financial, Economic, Business, and Entrepreneurial Literacy

Civic Literacy

Health Literacy
- The U.S. Department of Agriculture conducted a survey, which revealed that the average American eats about 5.5 pounds of food per day. How much food would a person consume in a week? A month? A year?

**Grade Level: Grade 4**
**Content Area: Math**

**Unit Description: Marking Period 3**

In the third marking period, 4th grade mathematics will focus on the following : Geometry and Measurement and Data Concepts

| Standard |
|---|
| Measurement and Data 4.MD |
| Geometry 4.G |

**Big Ideas:** *Course Objectives / Content Statement(s)*
Measurement and Data          4.MD

- *Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.*
- *Represent and interpret data.*
- *Geometric measurement: understand concepts of angle and measure angles.*

Geometry          4.G

- *Draw and identify lines and angles, and classify shapes by properties of their lines and angles.*

- 

| Essential Questions<br>*What provocative questions will foster inquiry, understanding, and transfer of learning?* | Enduring Understandings<br>*What will students understand about the big ideas?* |
|---|---|
| <ul><li>How are geometric properties used to solve problems in everyday life?</li><li>How can measurement be used to solve problems?</li></ul> | Students will understand that…<ul><li>Geometry and spatial sense offer ways to interpret and reflect on our physical environment.</li><li>Objects have distinct attributes that can be measured.</li><li>Analyzing geometric relationships develops reasoning and justification skills.</li><li>Geometric Figures can be analyzed and classified based on their properties such as having parallel sides, perpendicular sides, particular angle measures and symmetry</li></ul> |

| Areas of Focus: Proficiencies (CCSS) | Examples, Outcomes, Assessments |
|---|---|
| Students will: | Instructional Focus: |

Students will:

**4.MD.6**  Measure angles in whole-number degrees using a protractor.  Sketch angles of a specified measure.

**4.MD.7**  Recognize angle measure as additive.  When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts.  Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Geometry       4.G

*Draw and identify lines and angles, and classify shapes by properties of their lines and angles.*

**4.G.1**  Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines.  Identify these in two-dimensional figures.

**4.G.2**  Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size.  Recognize right triangles as a category, and identify right triangles.

Instructional Focus:

- Form angles of a given measure.
- Rotate objects a given number of degrees.
- Investigate the relationship between rotations and degrees.
- Draw and measure angles with a full-circle protractor.
- Describe a circle as having 360°.
- Use a half-circle protractor to measure and draw angles.
- Classify angles according to their measure.
- Use extended multiplication facts to convert between metric measurements.
- Estimate, without tools, the length of objects or distances in centimeters, decimeters, and meters.
- Measure the lengths of objects or distances in centimeters, decimeters, and meters.
- Use a scale to determine actual size.
- Describe rules to solve problems involving products of ones and tens and products of tens and tens.
- Solve multi-digit multiplication problems.
- Compare appropriate situations for the use of exact answers and estimates.
- Estimate whether a product is in the tens, hundreds, thousands, or more.

| 4.G.3 | Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. |
|---|---|

- Use exponential notation to represent powers of 10.
- Round large numbers to a given place.


Sample Assessments:
- Exit slips
  - There are 5 rows of cookies, with 7 cookies in each row. How many cookies in all?
  - 60 x _____ = 540
  - A box holds 7 crayons. How many boxes are needed to hold 128 crayons?
  - How many 7s are in 289?
  - How many degrees are in a semicircle (1/2 of a circle)?
  - Use a protractor to draw a 270° angle.
  - Use a half-circle protractor to draw and label an acute angle.
  - Use the Partial-Quotients Division Algorithm to solve: 743 ÷ 14.
  - List the following fractions from least to greatest: 1/6, 2/3, 4/12, 1 ½.
  - How much is 2/5 of 30 raisins?
  - What is 7/8 of 32?
  - There are 6 faces on a die. What fraction of the faces are even numbers?
  - 2/3 + 1/6 = _____
  - 
  - Write 3/10 as a decimal.
  - Barbara made cookies. ¾ of the cookies was 12. How many cookies did she make in all?
- Game record sheets
  - *Division Arrays*
  - *High-Number Toss*

|  |  |
|---|---|
|  | <ul><li>*Buzz and Bizz-Buzz*</li><li>*Robot*</li><li>*Angle Tangle*</li><li>*Beat the Calculator*</li><li>*Fraction Of*</li><li>*Fraction Match*</li><li>*Fraction Top-It*</li><li>*Chances Are*</li></ul><ul><li>Student self-assessment</li><li>Writing prompts<ul><li>The school custodian is setting up chairs for a parent meeting. There are 58 chairs. The principal asked the custodian to place 7 chairs in each row. How many rows of chairs will there be? Please explain your reasoning.</li><li>Mrs. Smith is planning a field trip for her fourth grade class to go to the Liberty Science Center. The bus will cost $200, and the tickets will cost $175. There are 25 students in her class. If they each pay an equal amount, how much will they each pay? Explain how you arrived at your solution.</li><li>How can you use multiples to solve division problems? Provide an example.</li><li>Suzy's birthday is in 131 days. How many weeks until her birthday? How did you solve the problem?</li><li>Bobby has 28 brownies. He wants to share them with 14 of his friends. Please explain how each person's share can be represented as a mixed number.</li><li>When you divide and are left with a remainder, how do you use the context to decide what to do with it?</li><li>Tessa had 36 cookies. 2/3 of them were chocolate chip. How many of them were not chocolate chip? Explain how you arrived at your solution.</li></ul></li></ul> |

|  |  |
|---|---|
|  | <ul><li>What is ¼ of 14?  Explain using pictures or a visual fraction model, how you solved the problem.</li><li>Can the probability of a situation *always* be represented as a fraction?  Why or why not?</li><li>Johnny solved the following problem: 5/6 – 2/3 and got 3/3 as his answer.  Please explain his mistake as well as how to correct it.</li><li>What is the easiest way to generate an equivalent fraction for ¾?  Use the rule you described to generate at least two equivalent fractions.</li><li>Jimmy wanted to figure out whether he would get more pizza if he ate ¾ of it or 5/8.  He figured since 5 is greater than 3 and 8 is greater than 4 that 5/8 of the same pizza would be more.  Can you please explain the flaw in his logic?</li></ul><br>• Math journals/Interactive Student Notebooks<br>• Record sheets<br>• Teacher observation<br>• Beginning, Middle, End-of-Year assessments<br>• Progress check written assessment<br>• Class checklists<br><br>Interdisciplinary Connections<br>• Interactive Student Notebooks<br>• Reading/writing word problems<br>• Math literature list (see attached)<br>• Suggested Projects:<ul><li>Students use their knowledge of angle measures and coordinate grids, in order to locate specific locations on a map.  By plotting the locations, it will lead them to a final destination.</li></ul> |

(http://www.abcya.com/latitude_and_longitude_practice.htm)

- o Students go geocaching, using a GPS and their knowledge of angle measures as a means of locating specific points, in order to find hidden caches.
- o Arrange students in groups of 3 or 4. Then, as a read aloud, share *The Doorbell Rang* by Pat Hutchins. Students must figure out how to share the plate of cookies in the story as more visitors arrive at the house. Ultimately, have students act out the story and use their knowledge of "fraction-of" problems, in order to figure out how to equally share the cookies.
- o Provide students with a recipe. Ask them to double, triple, or quadruple the recipe and have them use their knowledge of adding and subtracting fractions to generate a revised recipe.
- o Students create a timeline of the significant events of the Revolutionary War. Using a scale, they try to space out the events as accurately as possible to show elapsed time.

Technology Integration
- SMART Exchange – word problems - http://exchange.smarttech.com/search.html?q=word+problems
- Create a word problem and the answer in iMovie and post on classroom blog for other students.
- Apple Baskets Division http://www.kidsnumbers.com/apple-baskets-division.php

Media Literacy Integration
- PBS Kids – Don't Buy It, Buying Smart http://pbskids.org/dontbuyit/buyingsmart/hotorsnot.html

- Partnership for 21st Century Skills (p. 22-23)
  http://www.p21.org/storage/documents/P21_Math_Map.pdf

Global Perspectives
- Research why the metric system is a base 10 system.
- Make a timeline of the major achievements in the history of mathematics (dating back to B.C.)  Identify where the invention of the decimal system falls along the timeline.

21st Century Skills:
   Creativity and Innovation
- Write a song that only consists of ½ notes or 1/8 notes.
- Interview the librarian about how s/he uses the Dewey Decimal System to sort books in the library.  Then, try to come up with a different system for sorting the books in the library and propose it to the librarian.

Critical Thinking and Problem Solving
- Write a paragraph about whether fractions or decimals are more accurate and be sure to include your reasoning.

 Communication and Collaboration

 Information Literacy

 Life and Career Skills
- What jobs use these skills?
- How do your parents use these skills?

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

Financial, Economic, Business, and
Entrepreneurial Literacy

Civic Literacy

Health Literacy
- Students track the food that they eat over the course of the day. They compute the fraction of the calories that they consume that are fat-based, protein-based, and carbohydrate-based.
- Students calculate the fraction of bones that are in their:
  - Skull
  - Ear
  - Hands
  - Feet

Math Enrichment Ideas

<u>Digit Diversity</u>

Challenge students to see how many addition, subtraction and multiplication problems can be created without repeating a digit in any one problem. Examples:    37              28

$$\begin{array}{r} \text{X } 28 \\ \hline 196 \end{array} \qquad \begin{array}{r} \text{X } 7 \\ \hline 65 \end{array}$$

Variation: Students might find problems that use only sequential digits. Examples: 47          63

$$\begin{array}{r} + \ 6 \\ \hline 53 \end{array} \qquad \begin{array}{r} + \ 42 \\ \hline 105 \end{array}$$

<u>Clip Trip</u>

Students will measure the lengths of objects with standard and    jumbo paper clips, graph and analyze the data to develop understanding of a proportional relationship as a linear function represented in graphic and symbolic forms.

<u>MATH POSTCARDS FROM AROUND THE WORLD</u> You will travel around the world and use your math skills to write postcards to four different relatives or friends. Choose four destinations or cities such as the Grand Canyon, Sydney Harbor Bridge, the Eiffel tower, or the Coliseum in Rome. Write the math version on one side and decorate the other side with an illustration from the city or destination you are visiting. Check with your teacher to identify the mathematics before completing your postcard.

<u>Why Math?</u> Answer the following questions on another sheet of paper and staple your answers to a cover sheet. USE COMPLETE SENTENCES...

🎬Discuss five things you usually do on the weekends that require math.

🎬Ask three adults how they used math on their job today. Describe the type of job they have in addition to explaining how they used math.

🎬Think of three ways math could make your life more organized.

🎬Research and find out who invented math!    (WARNING: All answers may be different.)

🎬Create a poster collage of pictures or photos showing different ways math being used in our world today.

| Concept or Chapter | Resources for Enrichment |
|---|---|
| First Day Activity: Find a path from the *bottom left* to the *top right* that passes through an *equal* number of squares of each (non-white) color. SMP1,7,8 | Color Mazes: http://www2.stetson.edu/~efriedma/color/  <br><br>Mazes are powerful discovery learning tools that encourage persistence and critical thinking. |
| 4.OA.B4,4.NBT.A1 Players (2) select factors, multiply them and cover the corresponding product on the game board. The objective of the game is to be the first player to complete a continuous pathway across the game board. | Pathways(Products Tic-Tac-Toe), Math Games for Independent Practice, Marilyn Burns, p.137-40. Times Ten (Variation): Practice with multiples of ten. (attach) |
| 4.MD.A1,4.MD.A2 Students solve problems using measures of capacity. | https://www.georgiastandards.org/Georgia-Standards/Frameworks/4th_Math-Unit-7.pdf  <br><br>See: Water Balloon Fun and Dinner at the Zoo. |
| 4.G.A1,2 Students work individually or with a partner to make a math crossword puzzle using geometric vocabulary.  <br><br>4.G.A.3 Design a flag for your class that has at least two types of symmetry. | Research vocabulary and types of symmetry here: http://www.mathsisfun.com/index.htm |
| MP.1,3 Students should be allowed to work independently on these puzzles during the week. Then, when enough people have come up with solutions, time should be set aside to let students share their solutions, their methods of arriving or not arriving at a solution, their insights, and any patterns discovered. Journaling should be encouraged. | http://blog.aimsedu.org/category/puzzle/ <br>Free resources for k-8. |

| Concept or Chapter | Resources for Support |
|---|---|
| Beginning of the Year Activities | Figure Me Out! "All about me" math activity using division and multiplication http://4thgradefunfl.blogspot.com/2014/09/figure-me-out.html |
| Chapter 1: Place Value, Addition, and Subtraction to One Million | Game: Roll Thousands Game <br><br> Foldable for Math journal: http://www.math-aids.com/cgi/pdf_viewer_8.cgi?script_name=place_value_chart1.pl&x=89&y=33 |
| Chapter 2: Multiply by 1-Digit Numbers | Teaching Strategy: CUBES for solving word problems – good for math journal http://teacherpress.ocps.net/danielledonohue/files/2013/09/cubes-strategy-word-problems-version-2.jpg |
| Chapter 3: Multiply 2-Digit Numbers | Teaching Strategy:  Turtlehead method http://mscaomath.blogspot.com/2013/10/multiple-digit-multiplication.html |
| Chapter 4: Divide by 1-Digit Numbers | Center: http://www.k-5mathteachingresources.com/support-files/estimating-quotients.pdf <br><br> Text Support: A Remainder of One |
| Chapter 5: Factors, Multiples, and Patterns | Game: Factor flip http://s3.amazonaws.com/edcanvas-uploads/281020/local/1389646285/FactorFlipprimecompositegame.pdf <br><br> Task Cards: http://www.k-5mathteachingresources.com/support-files/prime-or-composite.pdf <br><br> GAME:  https://www.teacherspayteachers.com/Product/Factors-Free-Factor-Race-Math-Game- |

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|---|---|
| | 225089<br><br>Foldable for Math journal: https://tothesquareinch.files.wordpress.com/2012/01/gcf-venn-foldable.pdf |
| Chapter 6: Fraction Equivalence and Comparison | Game:<br>http://nis.tomballisd.net/ourpages/auto/2015/4/29/54823460/SimplifyingFractionsBingo.pdf |
| Chapter 7: Add and Subtract Fractions | Center: https://www.teacherspayteachers.com/Product/Fractions-Word-Problem-Task-Cards-FREEBIE-1786855 |
| Chapter 8: Multiply Fractions by Whole Numbers | Game: https://www.teacherspayteachers.com/Product/Multiplying-Madness-Multiplying-Fractions-by-a-Whole-Number-Board-Game-1645761<br><br> Task Cards: http://www.k-5mathteachingresources.com/support-files/equivalent-fractions-with-a-denominator-of-100-problems.pdf |
| Chapter 9: Relate Fractions and Decimals | Center: http://www.k-5mathteachingresources.com/support-files/decimal-sort.pdf<br><br>Center: http://www.k-5mathteachingresources.com/support-files/representing-decimals.pdf |
| Chapter 10: Two-Dimensional Figures | Game:  http://www.myeducationstuff.com/Symmetry/flags/quiz.htm<br><br>Center: http:// www.k-5mathteachingresources.com/support-files/classifying-triangles-v1.pdf<br><br>Text Support: The Greedy Triangle (Scholastic Bookshelf) by Marilyn Burns |
| Chapter 11: Angles | For Math notebook: http://www.lauracandler.com/filecabinet/math/PDF/geochart.pdf<br><br>Game: Angle Race |

| | http://blog.mrmeyer.com/2014/great-classroom-action-16/ |
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| Chapter 12: Relative Sizes of Measurement Units | Strategy: Elapsed Time T-Chart Strategy <br><br> Center: Clock foldable <br><br> Center: http://www.lauracandler.com/filecabinet/math/PDF/MeasurementWordProblems.pdf |
| Chapter 13: Algebra: Perimeter and Area | Computer Center: https://learnzillion.com/lessons/3397-solve-real-world-problems-by-finding-the-area-of-a-rectangle |