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| C:\Documents and Settings\olivine-roberts\Local Settings\Temporary Internet Files\Content.Outlook\LMI12OHF\Two tone green apple with black type.jpgCurriculum Map | Mathematics Grade 5 | |
| **DRAFT** Last Updated November 20, 2014 | | Sacramento City Unified School District |

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| Grade 5 Year-at-a-Glance | | | | |
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|  | **Month** | **Unit** | **Content Standards** | |
| **District Benchmark 1**  **\*Alignment TBD** | September | **Unit # 1:**  Place Value in Base Ten – Whole Numbers and Decimal Fractions | 5.NBT.1  5.NBT.2  5.NBT.3  5.NBT.4 | 5.MD.1  5.OA.1 |
| **District Benchmark 2**  **\*Alignment TBD** | October/November | **Unit #2:**  Multi-digit Operations with Whole Numbers and Decimal Fractions | 5.NBT.5  5.NBT.6  5.NBT.7  5.MD.1 | |
| December/January | **Unit #3:**  Addition and Subtraction of Fractions | 5.NF.1  5.NF.2 | 5.MD.2 |
| **District Benchmark 3**  **\*Alignment TBD** | February/March | **Unit #4:**  Multiplication and Division of Fractions | 5.NF.3  5.NF.4  5.NF.5  5.NF.6  5.NF.7 | 5.OA.2 |
| April/May | **Unit #5:**  Geometric Measures of Volume | 5.MD.3  5.MD.4  5.MD.5 | 5.NBT.2  5.NBT.5 |
| **CAASPP**  **(Smarter Balanced Summative Test)** | May | **Unit #6:**  Numerical Expressions, Patterns, and Relationships | 5.OA.1  5.OA.2  5.OA.3 | 5.G.1  5.G.2 |
| June | **Unit #7:**  Two-dimensional Figures | 5.G.3  5.G.4 | |

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| Unit #1: Place Value in Base Ten – Whole Numbers and Decimal Fractions (Approx. # Days- )  Content Standards: 5.NBT.1-4, 5.OA.1, 5.MD.1  In this unit students will extend understanding of place value system to read, write, and compare decimals to thousandths,  write and interpret numerical expressions, and convert like measurement units within a given measurement system. |
| Common Core State Standards-Mathematics:  *Number and Operations in Base Ten 5.NBT*  Understand the place value system.   1. Recognize that in a multi-digit number, a digit number, a digit in one place represents 10 times as much as it represents in the place to its right and of what it represents in the place to its left. 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. 3. Read, write, and compare decimals to thousandths.    1. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × () + 9 × () + 2 × ()    2. Compare two decimals to thousandths based on meanings of the digits in each place, using >, +, and < symbols to record the results of comparisons. 4. Use place value understanding to round decimals to any place.   *Operations and Algebraic Thinking 5.OA*  Write and interpret numerical expressions   1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.   *Measurement and Data 5.MD*  Convert like measurement units within a given measurement system.   1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05m), and use these conversions in solving multi-step, real world problems.   **SEL Competencies:**  Self-awareness  Self-management  Social awareness  Relationship skills  Responsible decision-making  **Standards for Mathematical Practice:**  SMP. 1 Make sense of problems and persevere in solving them  SMP. 2 Reason abstractly and quantitatively  SMP. 3 Construct viable argument and critique the reasoning of others  SMP. 4 Model with mathematics  SMP. 5 Use appropriate tools strategically  SMP. 6 Attend to precision  SMP. 7 Look for and make use of structure  SMP. 8 Look for and express regularity in repeated reasoning  **ELD Standards to Support Unit:**  **Part I: interacting in Meaningful Ways**   1. Collaborative 2. Exchanging information and ideas with others through oral collaborative conversations on a range of social and academic topics 3. Interacting with others in written English in various communicative forms (print, communicative technology, and multimedia 4. Offering and supporting opinions and negotiating with others in communicative exchanges 5. Adapting language choices to various contexts (based on task, purpose, audience, and text type) 6. Interpretive 7. Listening actively to spoken English in a range of social and academic contexts 8. Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language 9. Evaluating how well writers and speakers use language to support ideas and opinions with details or reasons depending on modality, text type, purpose, audience, topic, and content area 10. Analyzing how writers and speakers use vocabulary and other language resources for specific purposes (to explain, persuade, entertain, etc.) depending on modality, text type, purpose, audience, topic, and content area 11. Productive 12. Expressing information and ideas in formal oral presentations on academic topics 13. Supporting own opinions and evaluating others’ opinions in speaking and writing 14. Selecting and applying varied and precise vocabulary and language structures to effectively convey ideas   **Part II. Learning About How English Works**   1. Structuring Cohesive Texts    1. Understanding text structure    2. Understanding cohesion 2. Expanding and Enriching Ideas 3. Modifying to add details 4. Connecting and Condensing Ideas 5. Connecting ideas 6. Condensing ideas |

| Unit #1: Place Value in Base Ten – Whole Numbers and Decimal Fractions | | | | | |
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| **Essential**  **Questions** | **Assessments**  **for Learning** | **Sequence of Learning Outcomes**  **5.NBT.1-4, 5.OA.1, 5.MD.1** | **Strategies**  **for Teaching and Learning** | **Differentiation**  **e.g. EL, SpEd, GATE** | **Resources** |
| Essential Questions are thought- provoking, open-ended questions to be used within daily lessons that and are therefore connected to the Sequence of Learning Outcomes. | Assessments for Learning address Diagnostic, Formative, and Summative assessments used throughout the unit to inform instruction connected to the Sequence of Learning Outcomes.  *Note: These assessments are suggested, not required.*  From engageny Module 1: [Mid-unit Assessment:](http://www.engageny.org/sites/default/files/resource/attachments/g5-m1-mid-module_assessment.docx)  [Post-unit Assessment](http://www.engageny.org/sites/default/files/resource/attachments/g5-m1-end-of-module_assessment.docx) | Sequence of Learning Outcomes is intentionally organized for student success. Each outcome is not necessarily intended to be taught within one class session.  Each Outcome begins with  *Students will be able to…* | **Strategies to support Unit:**  From the *CA Mathematics Framework*   * [“Instructional Strategies”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013instructstrat.pdf) chapter provides research-based strategies for teaching math, K-12 * [“Supporting High Quality Common Core Instruction”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013supportinghqccm.pdf) chapter addresses the development, implementation, and maintenance of high-quality, standards-based mathematics instructional programs   “[Universal Design for Learning](http://www.cast.org/)” from CAST, the Center for Applied Special Technology | **Differentiation support for Unit:**  Use of math journals for differentiation and formative assessment. See [Teaching Channel Video](https://www.teachingchannel.org/videos/math-journals)  **Flexible grouping:**   * Content * Interest * Project/product * Level (Heterogeneous/ Homogeneous)   **Tiered:**   1. Independent Management Plan (Must Do/May Do) 2. Grouping    * Content    * Rigor w/in the concept    * Project-based learning    * Homework    * Grouping    * Formative Assessment   **Anchor Activities:**   * Content-related * Tasks for early finishers * Game * Investigation * Partner Activity * Stations   **Depth and Complexity Prompts/Icons:**   * Depth * Language of the Discipline * Patterns * Unanswered Questions * Rules * Trends * Big Ideas * Complexity   From GA DOE:  [Math Centers (Tubs)](http://gadoe.georgiastandards.org/mathframework.aspx?PageReq=MathCenter)    From SCUSD Wikispace: <http://scusd-math.wikispaces.com/home> | **CCSS Support for the Unit:**  [CA *Mathematics Framework,* “Grade 5”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf)   * p. 1-6 “What Students Learn in Grade 5” * p. 6-10 *Operations and Algebraic Thinking* * p. 10-22 *Number and Operations in Base Ten* * p. 32-37 *Measurement and Data* * p. 41-44 “Essential Learning for the Next Grade”   [*Kansas Association of Teachers of Mathematics (KATM) 5th Grade Flipbook*](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf)   * Provide illustrated examples, instructional strategies, additional resources/tools and misconceptions by standard. * p. 4-11 *Operations and Algebraic Thinking* * p. 12-28 *Number and Operations in Base Ten* * p. 48-56 *Measurement and Data*   [*North Carolina Department of Public Instruction: Unpacked Content*](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf)   * Provides illustrated examples, instructional strategies, additional resources/tools and misconceptions by standard. * p. 5-10 *Operations and Algebraic Thinking* * p. 11-26 *Number and Operations in Base Ten* * p. 44-47 *Measurement and Data*   [Progression for CCSS-M](http://ime.math.arizona.edu/progressions/), K-5   * Narrative documents describing the progression of a topic across a number of grade levels, informed both by research on children's cognitive development and by the logical structure of mathematics. * p. 32, 34-35 [Operations and Algebraic Thinking](http://commoncoretools.files.wordpress.com/2011/05/ccss_progression_cc_oa_k5_2011_05_302.pdf) * p. 2-4, 16-19 [Number and Operations in Base Ten](http://commoncoretools.me/wp-content/uploads/2011/04/ccss_progression_nbt_2011_04_073_corrected2.pdf) * p. 2-4, 26-28 [Measurement and Data](http://commoncoretools.files.wordpress.com/2012/07/ccss_progression_gm_k5_2012_07_21.pdf) |
| How are decimals and base-ten fractions useful in understanding the relationship between powers of ten (i.e. a digit in one place represents 10 times what it represents in its place to the right? | From Illustrative Mathematics: [“Kipton’s Scale”](https://www.illustrativemathematics.org/illustrations/1562)    [“Which One Is It?”](https://www.illustrativemathematics.org/illustrations/1799) | * 1. Explore and reason that in multi-digit whole numbers and decimal numbers a digit in one place represents 10 times what it represents in the place to its right and of what it represents in the place to its left. Students reason that computations and the relationship between the values represented by the places for whole numbers extend to decimals.   5.NBT.1 | Apply the reasoning of bundling tens: ten 10s to make 100, ten 100s make 1,000, etc. Likewise, unbundling 1,000 by groups of ten or taking of a 1,000 is 100, etc. (refer to the Progressions document *K-5, Number and Operations in Base Ten).*  Students can use calculators to confirm the results.  Use base-ten blocks or attaching cubes (refer to *Mathematics Framework*, p. 1-12).  Use one-unit model cut into 10 equal pieces, shaded, or describe as 1/10 of the model using fractional language.  Use 10 x 10 grids, or metric length measurements/ rulers to explore concept. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 10-12  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 12-14  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 11-12  **engageny**[Downloadable Resources, Module 1](https://www.engageny.org/resource/grade-5-mathematics-module-1)  Topic A “Multiplicative Patterns on the Place Value Chart  ***enVision*, Topic 1**   * Math Background: Numeration System, p.2G * Lesson 1-1 “Place Value Relationships” * Place Value Reteaching: Intervention, Set A, p.22   \**Teacher tool 10 available under teacher resources on web site* |
| When you multiply factors with powers of ten to each other, what happens to the number of zeroes in the product?  How does multiplying a whole number by a power of ten affect the product? | From Illustrative Mathematics:   * [“Marta’s Multiplication Error”](https://www.illustrativemathematics.org/illustrations/1524)      * [“Multiplying Decimals by 10”](https://www.illustrativemathematics.org/illustrations/1620) | * 1. Reason and describe the patterns in the number of zeros of the product when multiplying a whole number by powers of 10. Use whole-number exponents to denote powers of 10. Students connect the relationship that in our base-ten system, the power of ten is the repetition of bundling by tens. Students will check their solutions with calculators to reason about the decimal placements and the relationship between the original numbers (both whole and decimal) multiplied by the powers of 10.   5.NBT.2 | Students extend their place value understanding to explain the patterns in the number of zeros in products when multiplying by the power of tens (for example, students notices that every time they multiplied a number by 10, they placed a zero to the end of that number). Provide opportunity for students to make sense of the pattern that each digit’s value becomes 10 times larger and that the place value moves one place over to the left. Such as when students multiply 24 by 10, the “20” (24 = 20 + 4) became 200 and the “4” became 40 (or the 24 became 240).  Students also explain the relationship between the whole number exponent to multiplying by powers of 10. Refer to *CA Mathematics Framework*, p.12-13. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 10-16  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 15-16  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 13  **engageny**[Downloadable Resources, Module 1](https://www.engageny.org/resource/grade-5-mathematics-module-1)  Topic A “Multiplicative Patterns on the Place Value Chart” (Lessons 1 & 2)  ***enVision*, Topic 3**   * Lesson 3-2 “Multiplying by Powers of 10”   ***enVision*, Topic 6**   * Math Background: Multiplying Decimals, p.131A * Lesson: 6-1 “Multiplying Decimals by 10, 100, or 1,000” |
| How can you use what you know about whole number multiplication to multiply decimals by the powers of ten?  How does the pattern of the number of zeros when multiplying by powers of ten relate to multiplying decimals by the powers of ten? |  | * 1. Reason and describe the patterns in the decimal point placement when a decimal is multiplied or divided by powers of 10. Use whole-number exponents to denote powers of 10.   5.NBT.2 | Students may use a calculator to check for the decimal placement as they multiply or divide by powers of 10 and record the exponents. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 10-16  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 15-16  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 13  **engageny**[Downloadable Resources, Module 1](https://www.engageny.org/resource/grade-5-mathematics-module-1)   * Topic A “Multiplicative Patterns on the Place Value Chart” (Lesson 3) * Topic E “Multiplying Decimals” * Topic F “Dividing Decimals”   ***enVision*, Topic 7**   * Math Background: Dividing Decimals by 10, 100, or 1,000, p.155A * Lesson 7-1 “Dividing Decimals by 10, 100, or 1,000” |
| How can you read, write, and represent decimal values?  What is the relationship between decimals and fractions? |  | * 1. Read and write decimals to thousandths by using base-ten numerals, number names, and expanded form (for example, 347.392 = 3 × 100 + 4 ×10 + 7 × 1 + 3 × () + 9 × () + 2 × (). Understand and use parentheses to separate parts of the expanded form.   5.NBT.3a | Models may include base-ten blocks, place value charts, grids, pictures, drawings, manipulatives and technology. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 10-16  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 17-18  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 13-15  **engageny**[Downloadable Resources, Module 1](https://www.engageny.org/resource/grade-5-mathematics-module-1)   * Topic F “Dividing Decimals”   ***enVision*, Topic 1**   * Math Background: Numeration System, Whole Number Place Values, and Decimal Place Values, pp.2G-2H * Lesson 1-2 “Tenths and Hundredths” * Lesson 1-3 “Thousandths” |
| How can you read, write, and represent decimal values?  What is the relationship between decimals and fractions? | From Illustrative Mathematics: [“Are these equivalent to 9.52?”](https://www.illustrativemathematics.org/illustrations/1813) | * 1. Understand equivalence of decimals and fractions (for example,   0.4 = 0.40 = 0.400  or  0.12 =  = +  = + .  3.NBT.3a | Base-ten blocks or attaching cubes can help students make connections from the visual representations with the math (refer to *Mathematics Framework*, p.13-14). | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 10-16  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 17-18  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 13-15  **engageny**[Downloadable Resources, Module 1](https://www.engageny.org/resource/grade-5-mathematics-module-1)   * Topic B “Decimal Fractions and Place Value Patterns” (Lesson 5)   ***enVision*, Topic 1: Lesson**   * Lesson 1-4 “Decimal Place Value” |
| How do we compare decimals?  What things need to be considered when comparing decimals of different lengths? | From Illustrative Mathematics:   * [“Comparing Decimals on the Number Line”](https://www.illustrativemathematics.org/illustrations/1802)      * [“Drawing Pictures to Illustrate Decimal Comparisons”](https://www.illustrativemathematics.org/illustrations/1801) | * 1. Compare two decimals to the thousandths based on meanings of the digits’ place value using >, <, and = symbols.   5.NBT.3b | Students need to understand the size of decimal numbers and relate them to common benchmarks such as 0, 0.5 (0.50 and 0.500), and 1 (refer to *Mathematics* Framework, p.14-15). To help student with comparing decimals, give students opportunity to use their understanding of fractions to compare decimals. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 10-16  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 17-18  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 13-15  **engageny**[Downloadable Resources, Module 1](https://www.engageny.org/resource/grade-5-mathematics-module-1)   * Topic B “Decimal Fractions and Place Value Patterns” (Lesson 6)   ***enVision*, Topic 1: Lessons**   * Lesson 1-5 “Comparing Decimals” * Lesson 1-6 “Problem Solving: Look for a Pattern” |
| How can rounding decimal numbers be helpful?  When do you round decimals? | From Illustrative Mathematics: [“Rounding to Tenths and Hundredths”](https://www.illustrativemathematics.org/illustrations/1804) | * 1. Use place value understanding to round decimals to any place.   5.NBT.4 | Students can use number lines (utilizing the halfway point), hundred number charts, rulers, etc. to measure the distance (closer to, further than, same distance from) to determine the value of the rounded number. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 10-16  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 19  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 15-16  **engageny**[Downloadable Resources, Module 1](https://www.engageny.org/resource/grade-5-mathematics-module-1)   * Topic C “Place Value and Rounding Decimal Fractions”   ***enVision*, Topic 2**   * Math Background: Rounding Decimals, p.27B * Lesson 2-2 “Rounding Decimals” |
| How do we convert between units?  Why does what we measure influence how we measure and what we use? | From Illustrative Mathematics: [“Minutes and Days”](https://www.illustrativemathematics.org/illustrations/878) | * 1. Apply the understanding of place value to convert among different-sized measurement units (for example, covert 3 cm to 0.03 m).   5.MD.1 | This is an opportunity to use converting metric and customary units to further extend place value concept.  Use bar diagrams, or tape diagrams to help students convert units.  Use a two-column chart to convert and record equivalent units. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 32-33  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 48-49  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 44-45  **engageny**[Downloadable Resources, Module 1](https://www.engageny.org/resource/grade-5-mathematics-module-1)   * Topic A “Multiplicative Patterns on the Place Value Chart” (Lesson 4)   ***enVision*, Topic 13**   * Math Background: Goals for Working with Weight and Mass, Customary Units of Weight, and Metric Units of Mass, pp.303A-303B * Universal Access, p.303C * Lesson 13-1 “Converting Customary Units of Length” * Lesson 13-2 “Converting Customary Units of Capacity” * Lesson 13-3 “Converting Customary Units of Weight” * Lesson 13-4 “Converting Metric Units of Lengths” * Lesson 13-5 “Converting Metric Units of Capacity” * Lesson 13-6 “Converting Metric Units of Mass” * Lesson 13-7 “Problem Solving: Multiple-Step Problems” * Topic 13 Units of Measure Reteaching: Intervention p.320, Sets A-G |

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| Unit #2: Multi-digit Operations with Whole Numbers and Decimal Fractions (Approx. # Days- )  Content Standards: 5.NBT.5-7, 5.MD.1  In this unit students will perform operations with multi-digit whole numbers and with decimals to hundredths,  use conversion of like measurement units within a given measurement system to solve real world problems. |
| Common Core State Standards-Mathematics:  *Number and Operations in Base Ten 5.NBT*  Perform operations with multi-digit whole numbers and with decimals to hundredths.   1. Fluently multiply multi-digit whole numbers using the standard algorithm. 2. Find whole –number quotients of whole numbers with up to four-digit dividends and two-digit divisor, 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. 3. 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.   *Measurement and Data 5.MD*  Convert like measurement units within a given measurement system.   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.   **Standards for Mathematical Practice:**  SMP. 1 Make sense of problems and persevere in solving them  SMP. 2 Reason abstractly and quantitatively  SMP. 3 Construct viable argument and critique the reasoning of others  SMP. 4 Model with mathematics  **SEL Competencies:**  Self-awareness  Self-management  Social awareness  Relationship skills  Responsible decision-making  SMP. 6 Attend to precision  SMP. 7 Look for and make use of structure  SMP. 8 Look for and express regularity in repeated reasoning  **ELD Standards to Support Unit:**  **Part I: interacting in Meaningful Ways**   1. Collaborative 2. Exchanging information and ideas with others through oral collaborative conversations on a range of social and academic topics 3. Interacting with others in written English in various communicative forms (print, communicative technology, and multimedia 4. Offering and supporting opinions and negotiating with others in communicative exchanges 5. Adapting language choices to various contexts (based on task, purpose, audience, and text type) 6. Interpretive 7. Listening actively to spoken English in a range of social and academic contexts 8. Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language 9. Evaluating how well writers and speakers use language to support ideas and opinions with details or reasons depending on modality, text type, purpose, audience, topic, and content area 10. Analyzing how writers and speakers use vocabulary and other language resources for specific purposes (to explain, persuade, entertain, etc.) depending on modality, text type, purpose, audience, topic, and content area 11. Productive 12. Expressing information and ideas in formal oral presentations on academic topics 13. Supporting own opinions and evaluating others’ opinions in speaking and writing 14. Selecting and applying varied and precise vocabulary and language structures to effectively convey ideas   **Part II. Learning About How English Works**   1. Structuring Cohesive Texts    1. Understanding text structure    2. Understanding cohesion 2. Expanding and Enriching Ideas 3. Modifying to add details 4. Connecting and Condensing Ideas 5. Connecting ideas 6. Condensing ideas |

| Unit #2: Multi-digit Operations with Whole Numbers and Decimal Fractions | | | | | |
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| **Essential**  **Questions** | **Assessments**  **for Learning** | **Sequence of Learning Outcomes**  **5.NBT.5-7, 5.MD.1** | **Strategies**  **for Teaching and Learning** | **Differentiation**  **e.g. EL, SpEd, GATE** | **Resources** |
| Essential Questions are thought- provoking, open-ended questions to be used within daily lessons that and are therefore connected to the Sequence of Learning Outcomes. | Assessments for Learning address Diagnostic, Formative, and Summative assessments used throughout the unit to inform instruction connected to the Sequence of Learning Outcomes.  *Note: These assessments are suggested, not required.*  Post Assessment from engageny: [Grade 5 Mathematics Module 2: End-of-Module Assessment - Word Document](http://www.engageny.org/sites/default/files/resource/attachments/g5-m2-end-of-module_assessment.docx) | Sequence of Learning Outcomes is intentionally organized for student success. Each outcome is not necessarily intended to be taught within one class session.  Each Outcome begins with  *Students will be able to…* | **Strategies to support Unit:**  From the *CA Mathematics Framework*   * [“Instructional Strategies”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013instructstrat.pdf) chapter provides research-based strategies for teaching math, K-12 * [“Supporting High Quality Common Core Instruction”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013supportinghqccm.pdf) chapter addresses the development, implementation, and maintenance of high-quality, standards-based mathematics instructional programs   “[Universal Design for Learning](http://www.cast.org/)” from CAST, the Center for Applied Special Technology | **Differentiation support for Unit:**  Use of math journals for differentiation and formative assessment. See [Teaching Channel Video](https://www.teachingchannel.org/videos/math-journals)  **Flexible grouping:**   * Content * Interest * Project/product * Level (Heterogeneous/ Homogeneous)   **Tiered:**   1. Independent Management Plan (Must Do/May Do) 2. Grouping    * Content    * Rigor w/in the concept    * Project-based learning    * Homework    * Grouping    * Formative Assessment   **Anchor Activities:**   * Content-related * Tasks for early finishers * Game * Investigation * Partner Activity * Stations   **Depth and Complexity Prompts/Icons:**   * Depth * Language of the Discipline * Patterns * Unanswered Questions * Rules * Trends * Big Ideas * Complexity   From GA DOE:  [Math Centers (Tubs)](http://gadoe.georgiastandards.org/mathframework.aspx?PageReq=MathCenter)    From SCUSD Wikispace: <http://scusd-math.wikispaces.com/home> | **CCSS Support for the Unit:**  [CA Mathematics Framework, “Grade 5”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf)   * p. 1-6 “What Students Learn in Grade 5” * p. 10-22 *Number and Operations in Base Ten* * p. 32-37 *Measurement and Data* * p. 41-44 “Essential Learning for the Next Grade”   [Kansas Association of Teachers of Mathematics (KATM) 5th Grade Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf),   * Provide illustrated examples, instructional strategies, additional resources/tools and misconceptions by standard. * p. 12-28 Number and Operations in Base Ten * p. 48-56 Measurement and Data   [North Carolina Department of Public Instruction: Unpacked Content](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf),   * Provide illustrated examples, instructional strategies, additional resources/tools and misconceptions by standard. * p. 11-26 Number and Operations in Base Ten * p. 44-47 Measurement and Data   [Exploring Dividing Decimals to the Hundredths](http://www.engageny.org/resource/common-core-instruction-exploring-dividing-decimals-to-the-hundredths) From engageny  [Progression for CCSS-M](http://ime.math.arizona.edu/progressions/), K-5  [Number and Operations in Base Ten](http://commoncoretools.me/wp-content/uploads/2011/04/ccss_progression_nbt_2011_04_073_corrected2.pdf)   * p. 2-4, 16-19   [Measurement and Data](http://commoncoretools.files.wordpress.com/2012/07/ccss_progression_gm_k5_2012_07_21.pdf)  p. 2-4, 26-28 |
| * How can we multiply large numbers? |  | 1. Multiply multi-digit whole numbers using mental strategies.   5.NBT.5  ***Students need the opportunity to practice multiplying multi-digit whole numbers using the standard algorithm throughout the school year****.* | For example, using doubling & halving, properties of operations, decomposition as multiplication strategies.  See previous grade level standards 3.OA.1, 7 and 4.NBT.5 that develop the necessary skills for this standard. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 16-22  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 20-22  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 17-18  ***enVision*, Topic 3**   * Math Background: Mental Math and Multiplication on p. 59B for strategies. |
| * How can you use place value understanding to solve multiplication and division problems? * How can drawing a diagram help you solve multiplication and division problems? | From NC Wikispace:  [“Field Trip Funds”](http://3-5cctask.ncdpi.wikispaces.net/5.NBT.5-5.NBT.7) (5.NBT.5 Task 2) | 1. Apply place value knowledge to fluently multiply multi-digit numbers using a partial products method and to solve multi-step, real world word problems (add, and/or subtract, and multiply).   5.NBT.5 | The partial products method is another way to record the standard algorithm. Give students enough opportunity to use partial products in order to make the connection to standard algorithm.  Rename numbers in tens and ones and use the distributive property to calculate different multiplication problems, such as equal groups, arrays, area, and (measurement) comparison.  Apply the distributive property of multiplication over addition as a strategy to solve products they do not know by using the area model (for example, 3 × 5 is 15, so 3 × 6 is 15 + 3 more is 18) | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 16-22  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 20-22  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 17-18  ***enVision*, Topic 3**   * Math Background: Meanings of Multiplication, Mental Math and Multiplication, and Teaching the Algorithm, pp. 59A-59B * Lesson 3-3 “Multiplying 2-Digit Numbers by Multiples of 10” * Lesson 3-4 “Multiplying 2-Digit by 2-Digit Numbers * Lesson 3-5 “Multiplying Greater Numbers” * Lesson 3-6 “Problem Solving: Draw a Picture and Write an Equation” |
| * How can knowing properties of operations help you solve multiplication and division problems? * What does it mean to divide? * How can you use multiplication to solve division problems? * When dividing, why is the remainder important? Or, why do you need to consider the remainder? | From NC Wikispace:  [“George’s Division Strategy”](http://3-5cctask.ncdpi.wikispaces.net/5.NBT.5-5.NBT.7) (5.NBT.6 Task 1) | 1. Divide multi-digit whole numbers using mental strategies, including manipulatives & estimation.   5.NBT.6 |  | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 16-22  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 23-24  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 19-20 [Video from YouTube](http://www.youtube.com/watch?v=8IXAqXGDMXw) “Using Base 10 Blocks to Model Long Division” ***enVision*, Topic 4**   * Math Background: Estimation/Number Theory, p. 79A * Topic 5 Math Background: Division and Mental Math, p. 105A * Lesson 4-1 “Dividing Multiplies of 10 and 100” * Lesson 4-2 “Estimating Quotients” |
| * How can drawing a diagram help you solve multiplication and division problems? | From NC Wikispace:  [“Lion Hunt”](http://3-5cctask.ncdpi.wikispaces.net/5.NBT.5-5.NBT.7) (5.NBT.6 Task 2) | 1. Apply place value knowledge to extend multi-digit division of numbers up to four-digit dividends and two-digit divisors to solve multi-step, real world word problems. Students will use various strategies, such as the partial quotient method, area model, drawings, and equations to illustrate and explain their reasoning.   5.NBT.6 | Use base ten, drawings, “Russian division method” to support place value knowledge. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 18-19  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 23-24  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 19-20  ***enVision*, Topic 4:** Lesson   * Math Background: Estimation/Number Theory and Division and Remainders, p. 79A-79B * Lesson 4-3 “Problem Solving: Reasonableness” * Lesson 4-4 “Dividing by 1-Digit Divisors” * Lesson 4-5 “Zeros in the Quotient” * Lesson 4-6 “More Dividing by 1-Digit Divisors” * Lesson 4-7 “Problem Solving: Draw a Picture and Write an Equation”   ***enVision*, Topic 5**   * Lesson 5-1 “Using Patterns to Divide” * Lesson 5-2 “Estimating Quotients with 2-Digit Divisors” * Lesson 5-3 “Connecting Models and Symbols” * Lesson 5-4 Dividing by Multiples of 10” * Lesson 5-5 “1-Digit Quotients * Lesson 5-6 “2-Digit Quotients” * Lesson 5-7 “Dividing with Greater Numbers” * Lesson 5-8 “Problem Solving: Missing or Extra Information” |
| * How can you decide if your solution is reasonable? | From Mathematics Assessment Resources Service (MARS):  [“For the Hundredths Time”](http://scusd-math.wikispaces.com/file/view/MARS2012-05+For+the+Hundredths+Time.pdf/509378802/MARS2012-05%20For%20the%20Hundredths%20Time.pdf) | 1. Add and subtract decimals up to hundredths (using a variety of strategies) and apply to word problems.   5.NBT.7 | Use money, concrete models, and drawings to support the reasoning.  [“Exploring Dividing Decimals to the Hundredths”](http://www.engageny.org/resource/common-core-instruction-exploring-dividing-decimals-to-the-hundredths) | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 16-22  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 25-28  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 21-26  ***enVision*, Topic 2**   * 2-1 “Mental Math” * 2-2 “Rounding Decimals” * 2-3 “Estimating Sums and Differences” * 2-4 “Modeling Addition and Subtraction of Decimals” * 2-5 “Adding Decimals” * 2-6 “Subtracting Decimals” * 2-7 “Problem Solving: Multiple-Step Problems”   ***enVision*, Topic 3: Lesson**   * 3-1 “Multiplication Properties” |
| * How can drawing a diagram help you solve multiplication and division problems? * How can you decide if your solution is reasonable? | From Illustrative Mathematics:  [“Minutes and Days”](https://www.illustrativemathematics.org/illustrations/878) | 1. Apply place value knowledge to extend to decimal multi-digit multiplication (up to hundredths) using concrete models, drawings, various strategies, and explanations.   5.NBT.7 | Encourage students to continue to use concrete models, drawings and various strategies (such as partial products) to solve decimal multi-digit problems before engaging in the standard algorithm. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 16-22  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 25-28  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 21-26  ***enVision*, Topic 6**   * 6-2 “Estimating the Product of a Decimal and a Whole Number” * 6-3 “Number Sense: Decimal Multiplication” * 6-4 “Models for Multiplying Decimals” * 6-5 “Multiplying a Decimal by a Whole Number” * 6-6 “Multiplying Two Decimals” * 6-7 “Problem Solving: Multiple-Step Problems |
| * How can drawing a diagram help you solve multiplication and division problems? * How can you decide if your solution is reasonable? | From Illustrative Mathematics:  [“The Value of Education”](https://www.illustrativemathematics.org/illustrations/1293)  From MARS tasks:  [“Earning Pocket Money”](http://scusd-math.wikispaces.com/file/view/MARS2011-05+Earning+Pocket+Money.pdf/509381216/MARS2011-05%20Earning%20Pocket%20Money.pdf) | 1. Extend division understanding from whole numbers to decimal numbers (up to hundredths) using concrete models, drawings, various strategies, and written models.   5.NBT.7 | Use money, drawings, base ten understanding to support place value knowledge.  Refer to “North Carolina Unpacked Content” document, pp 19-29  Refer to *Mathematics Frameworks*, pp.19-22 | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 16-22  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 25-28  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 21-26  ***enVision*, Topic 7**   * 7-2 “Estimating Decimal Quotients” * 7-3 “Number Sense: Decimal Division” * 7-4 “Dividing by a Whole Number” * 7-5 “Dividing a Whole Number by a Decimal” * 7-6 “Dividing a Decimal by a Decimal” * 7-7 “Problem Solving: Multiple-Step Problems” |
| * How do we convert between units? * Why does what we measure influence how we measure and what we use? | From NC Wikispace: [“Who Ran Further?](http://3-5cctask.ncdpi.wikispaces.net/5.NBT.5-5.NBT.7)”  (5.MD.1 Task 1) | 1. Extend base-ten understanding (such as, powers of 10) to explore and solve measurement word problems involving the conversions within the metric system (decimal place up to hundredths).   5.MD.1 | At this point, students build on their prior knowledge from grade four to express measurements into larger or smaller units within a measurement system. This is an opportunity to reinforce place value understanding of whole numbers and decimals as well as helping students make connections between fractions and decimals. (e.g. 1 ½ m can be expressed as 1.5 m or 150 cm) Refer to *CA Mathematics Framework,* p. 33. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 32-33  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p. 48-49  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 44-45 |

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| Unit #3: Addition and Subtraction of Fractions (Approx. # Days- )  Content Standards: 5.NF.1-2, 5.MD.2  In this unit students will use equivalent fractions as a strategy to add and subtract fractions; use a line plot to represent and interpret data involving fraction units. |
| Common Core State Standards-Mathematics:  *Number and Operations – Fractions 5.NF*  Use equivalent fractions as a strategy to add and subtract fractions.   * 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. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*   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 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*   *Measurement and Data 5.MD*  Represent and interpret data.  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. *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.*  **Standards for Mathematical Practice:**  SMP. 1 Make sense of problems and persevere in solving them  SMP. 2 Reason abstractly and quantitatively  SMP. 3 Construct viable argument and critique the reasoning of others  SMP. 4 Model with mathematics  SMP. 5 Use appropriate tools strategically  **SEL Competencies:**  Self-awareness  Self-management  Social awareness  Relationship skills  Responsible decision-making  SMP. 6 Attend to precision  SMP. 7 Look for and make use of structure  SMP. 8 Look for and express regularity in repeated reasoning  **ELD Standards to Support Unit:**  **Part I: Interacting in Meaningful Ways**   1. Collaborative 2. Exchanging information and ideas with others through oral collaborative conversations on a range of social and academic topics 3. Interacting with others in written English in various communicative forms (print, communicative technology, and multimedia 4. Offering and supporting opinions and negotiating with others in communicative exchanges 5. Adapting language choices to various contexts (based on task, purpose, audience, and text type) 6. Interpretive 7. Listening actively to spoken English in a range of social and academic contexts 8. Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language   8. Analyzing how writers and speakers use vocabulary and other language resources for specific purposes (to explain, persuade, entertain, etc.) depending on modality, text type, purpose, audience, topic, and content area   1. Productive 2. Expressing information and ideas in formal oral presentations on academic topics 3. Supporting own opinions and evaluating others’ opinions in speaking and writing 4. Selecting and applying varied and precise vocabulary and language structures to effectively convey ideas   **Part II. Learning About How English Works**   1. Structuring Cohesive Texts    1. Understanding text structure    2. Understanding cohesion 2. Expanding and Enriching Ideas 3. Modifying to add details 4. Connecting and Condensing Ideas 5. Connecting ideas 6. Condensing ideas |

| Unit #3: Addition and Subtraction of Fractions | | | | | |
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| **Essential**  **Questions** | **Assessments**  **for Learning** | **Sequence of Learning Outcomes**  **5.NF.1-2, 5.MD.2** | **Strategies**  **for Teaching and Learning** | **Differentiation**  **e.g. EL, SpEd, GATE** | **Resources** |
| Essential Questions are thought- provoking, open-ended questions to be used within daily lessons that and are therefore connected to the Sequence of Learning Outcomes. | Assessments for Learning address Diagnostic, Formative, and Summative assessments used throughout the unit to inform instruction connected to the Sequence of Learning Outcomes.  *Note: These assessments are suggested, not required.* | Sequence of Learning Outcomes is intentionally organized for student success. Each outcome is not necessarily intended to be taught within one class session.  Each Outcome begins with  *Students will be able to…* | **Strategies to support Unit:**  From the *CA Mathematics Framework*   * [“Instructional Strategies”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013instructstrat.pdf) chapter provides research-based strategies for teaching math, K-12 * [“Supporting High Quality Common Core Instruction”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013supportinghqccm.pdf) chapter addresses the development, implementation, and maintenance of high-quality, standards-based mathematics instructional programs   “[Universal Design for Learning](http://www.cast.org/)” from CAST, the Center for Applied Special Technology | **Differentiation support for Unit:**  Use of math journals for differentiation and formative assessment. See [Teaching Channel Video](https://www.teachingchannel.org/videos/math-journals)  **Flexible grouping:**   * Content * Interest * Project/product * Level (Heterogeneous/ Homogeneous)   **Tiered:**   1. Independent Management Plan (Must Do/May Do) 2. Grouping    * Content    * Rigor w/in the concept    * Project-based learning    * Homework    * Grouping    * Formative Assessment   **Anchor Activities:**   * Content-related * Tasks for early finishers * Game * Investigation * Partner Activity * Stations   **Depth and Complexity Prompts/Icons:**   * Depth * Language of the Discipline * Patterns * Unanswered Questions * Rules * Trends * Big Ideas * Complexity   From GA DOE:  [Math Centers (Tubs)](http://gadoe.georgiastandards.org/mathframework.aspx?PageReq=MathCenter)    From SCUSD Wikispace: <http://scusd-math.wikispaces.com/home> | **CCSS Support for the Unit:**  [CA *Mathematics Framework,* “Grade 5”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf), pp. 22-24, 33-34  [“Instructional Strategies”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013instructstrat.pdf)  [“Supporting High Quality Common Core Instruction”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013supportinghqccm.pdf)  [Kansas Association of Teachers of Mathematics (KATM) 5th Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf), pp. 29-33, 50-51  [*North Carolina Department of Public Instruction: Unpacked Content*](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf), pp. 27-31, 46  [*Progression for the Common Core State Standards in Mathematics*: *3–5, Number and Operations – Fractions*](http://commoncoretools.me/wp-content/uploads/2011/08/ccss_progression_nf_35_2013_09_19.pdf)*,* pp.11-14  [*Progression for the Common Core State Standards in Mathematics: K-5, Measurement & Data*](http://commoncoretools.files.wordpress.com/2011/06/ccss_progression_md_k5_2011_06_20.pdf)pp.2-4, 11-13 |
| * How can you add and subtract fractions with unlike denominators? * How are benchmark fractions helpful when solving problems? * How can using diagrams help you solve problems involving fractions? | From Illustrative Mathematics:  [“Egyptian Fractions”](https://www.illustrativemathematics.org/illustrations/839) | 1. Use the understanding of equivalent fractions to add two fractions with unlike denominators, where one of the denominators is a divisor of the other and needs to be renamed. Use area models, number lines, or other visual fraction models to justify and explain.   5.NF.1 | Give students opportunity to review 4th grade fraction concept of finding equivalent fractions.  For example: +  (Note: students are not solving an equation, but rather finding the equivalence. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 22-24  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.29-30  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 27-28  Possible Resources:  ***, Module 3 “Addition and Subtraction of Fractions***   * Topic A: Equivalent Fractions   + Lesson 1: “Make equivalent fractions with the number line, the area model, and numbers”   + Lesson 2: “Make equivalent fractions with sums of fractions with like denominators”   ***Mathematics International, Unit 10: “Addition and Subtraction of Fractions***   * Section 1: “Fractions of the Same Size”   + Lesson 1, p. B15-B17   + Lesson 2, p.B17-B18   + Lesson 3, p.B19-B20 |
| * How can you add and subtract fractions with unlike denominators? * How are benchmark fractions helpful when solving problems? * How can using diagrams help you solve problems involving fractions? |  | 1. Use the understanding of equivalent fractions to add two fractions with unlike denominators, where both fractions need to be renamed. Use area models, number lines, or other visual fraction models to justify and explain.   5.NF.1 | For example: + | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 22-24  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.29-30  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 27-28  Possible Resources:  ***Mathematics International, Unit 10: “Addition and Subtraction of Fractions***   * Section 2: “Addition and Subtraction of Fractions”   + Lesson 1, p. B21   + Lesson 2, p. B22   + Lesson 3, p. B22-B24   ***enVision*, Topic 9 “Adding and Subtracting Fractions**   * 9-4 “Estimating Sums and Differences of Fractions” * 9-5 “Adding Fractions with Unlike Denominators” |
| * How can you add and subtract fractions with unlike denominators? * How are benchmark fractions helpful when solving problems? * How can using diagrams help you solve problems involving fractions? | From Illustrative Mathematics:   * [“Mixed Numbers with Unlike Denominators”](https://www.illustrativemathematics.org/illustrations/847) * [“Finding Common Denominators to Subtract”](https://www.illustrativemathematics.org/illustrations/859) | 1. Add and subtract fractions with unlike denominators (include mixed numbers) by using fraction equivalence. Use area models, number lines, or other visual fraction models to justify and explain.   5.NF.1 |  | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 22-24  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.29-30  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 27-28  Possible Resources:  ***, Module 3 “Addition and Subtraction of Fractions***   * Topic B: “Making Like Units Pictorially”   + Lesson 3: “Add fractions with unlike units using the strategy of creating equivalent fractions.   + Lesson 4: “Add fractions with sums between 1 and 2”   + Lesson 5: “Subtract fractions with unlike units using the strategy of creating equivalent fractions”   + Lesson 6: “Subtract fractions from numbers between 1 and 2”   ***Mathematics International, Unit 10: “Addition and Subtraction of Fractions***   * Section 2: “Addition and Subtraction of Fractions”   + Lesson 5, p.B24   + Lesson 6, p.B24   ***Teaching Student-Centered Mathematics, Grades 3-5, Ch. 6 “Fraction Computation”***   * “Addition and Subtraction,” p.162-167   ***enVision*, Topic 9 “Adding and Subtracting Fractions**   * 9-6 “Subtracting Fractions with Unlike Denominators” * 9-7 “More Adding and Subtracting Fractions”   ***enVision*, Topic 10 “Adding and Subtracting Mixed Numbers**   * 10-1 “Estimating Sums and Differences of Mixed Numbers” * 10-2 “Modeling Addition and Subtraction of Mixed Numbers” * 10-3 “Adding Mixed Numbers” * 10-4 “Subtracting Mixed Numbers” |
| * How can you add and subtract fractions with unlike denominators? * How are benchmark fractions helpful when solving problems? * How can using diagrams help you solve problems involving fractions? | From Illustrative Mathematics:  [“Salad Dressing”](https://www.illustrativemathematics.org/illustrations/1172) | 1. Solve word problems involving addition and subtraction of fractions that refer to the same whole. Apply number sense of fractional quantities and estimate reasonableness when solving. Justify and explain using visual fraction models and/or equations.   5.NF.2 | Use benchmark fractions when reasoning and estimating. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 22-24  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.31-33  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 28-31  Possible Resources:  ***, Module 3 “Addition and Subtraction of Fractions***   * Topic B: “Making Like Units Pictorially”   + Lesson 7: “Solve two-step word problems” * Topic C: “Making Like Units Numerically”   + Lesson 8: “Add fractions to and subtract fractions from whole numbers using equivalence and the number line as strategies”   + Lesson 9: “Add fractions making like units numerically”   + Lesson 10: “Add fractions with sums greater than 2”   + Lesson 11: “Subtract fractions making like units numerically”   + Lesson 12: “Subtract fractions greater than or equal to one” * Topic D: “Further Applications”   + Lesson 13: “Use fraction benchmark numbers to assess reasonableness of addition and subtraction equations”   + Lesson 14: “Strategize to solve multi-term problems”   + Lesson 15: “Solve multi-step word problems; assess reasonableness of solutions using benchmark numbers”   + Lesson 16: “Explore part-to-whole relationships”   ***enVision*, Topic 9 “Adding and Subtracting Fractions**   * 9-8 “Draw a Picture and Write an Equation”   ***enVision*, Topic 10 “Adding and Subtracting Mixed Numbers**   * 10-5 “More Adding and Subtracting Mixed Numbers” * 10-6 “Draw a Picture and Write an Equation” |
| * Why display data in different ways? |  | 1. Gather and display measurement data in fractions of a unit (, , and ) on a line plot.   5.MD.2 |  | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 33-34  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.50-51  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 46  ***enVision*, Topic 14 “Data”**   * 14-1 “Line Plots” * 14-2 “Data from Surveys” * 14-3 “Making Line Plots” |
| * How are benchmark fractions helpful when solving problems? * How can using diagrams help you solve problems involving fractions? |  | 1. Use addition and subtraction on fractions to solve problems involving information presented in line plots.   5.MD.2 |  | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 33-34  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.50-51  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 46  ***enVision*, Topic 14 “Data”**   * 14-4 “Measurement Data” |

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| Unit #4: Multiplication and Division of Fractions (Approx. # Days- )  Content Standards: 5.NF.3-7, 5.OA.2  In this unit students will apply and extend previous understandings of multiplication and division to multiply and divide fractions; write and interpret numerical expressions. |
| Common Core State Standards-Mathematics:  *Number and Operations – Fractions 5.NF*  Apply and extend previous understandings of multiplication and division to multiply and divide fractions.   1. Interpret a fraction as division of the numerator by the denominator *(a/b = a ÷ b)*. Solve word problems involving division of whole numbers leading to answers in the form of fractions 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 tot 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?* 2. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.    1. Interpret the product *(a/b) x q* as a parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a x q ÷b*. *For example, use a visual fraction model to show (2/3) x 4 = 8/3, and create a story context for this equation. Do the same with (2/3) x (4/5) = 8/15. (In general, (a/b) x (c/d) = ac/bd.)*    2. 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 the areas of rectangles, and represent fraction products as rectangular areas. 3. Interpret multiplication as scaling (resizing), by:    1. 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.    2. 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 *a/b = (n x a) / (n b*) to the effect of multiplying *a/b* by 1. 4. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by visual faction models or equations to represent the problem. 5. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.\*   \* Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division. But division of a fraction by a fraction is not a requirement at this grade.   1. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. For example, create a story context for () ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that () ÷ 4 = because () × 4 = . 2. Interpret division of a whole number by a unit fraction, and compute such quotients. For example, create a story context for 4 ÷ () = 20 because 20 × () = 4. 3. 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 lb of chocolate equally? How many -cup servings are in 2 cups of raisins?   *Operations and Algebraic Thinking 5.OA*  Write and interpret numerical expressions.   1. 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 x (8 + 7). Recognize that 3 x (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*   **Standards for Mathematical Practice:**  SMP. 1 Make sense of problems and persevere in solving them  SMP. 2 Reason abstractly and quantitatively  SMP. 3 Construct viable argument and critique the reasoning of others  SMP. 4 Model with mathematics  SMP. 5 Use appropriate tools strategically  **SEL Competencies:**  Self-awareness  Self-management  Social awareness  Relationship skills  Responsible decision-making  SMP. 6 Attend to precision  SMP. 7 Look for and make use of structure  SMP. 8 Look for and express regularity in repeated reasoning  **ELD Standards to Support Unit:**  **Part I: Interacting in Meaningful Ways**   1. Collaborative 2. Exchanging information and ideas with others through oral collaborative conversations on a range of social and academic topics 3. Interacting with others in written English in various communicative forms (print, communicative technology, and multimedia 4. Offering and supporting opinions and negotiating with others in communicative exchanges 5. Adapting language choices to various contexts (based on task, purpose, audience, and text type) 6. Interpretive 7. Listening actively to spoken English in a range of social and academic contexts 8. Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language   8. Analyzing how writers and speakers use vocabulary and other language resources for specific purposes (to explain, persuade, entertain, etc.) depending on modality, text type, purpose, audience, topic, and content area   1. Productive 2. Expressing information and ideas in formal oral presentations on academic topics 3. Supporting own opinions and evaluating others’ opinions in speaking and writing 4. Selecting and applying varied and precise vocabulary and language structures to effectively convey ideas   **Part II. Learning About How English Works**   1. Structuring Cohesive Texts    1. Understanding text structure    2. Understanding cohesion 2. Expanding and Enriching Ideas 3. Modifying to add details 4. Connecting and Condensing Ideas 5. Connecting ideas 6. Condensing ideas |

| Unit #4: Multiplication and Division of Fractions | | | | | |
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| **Essential**  **Questions** | **Assessments**  **for Learning** | **Sequence of Learning Outcomes**  **5.NF.3-7, 5.OA.2** | **Strategies**  **for Teaching and Learning** | **Differentiation e.g. EL, SpEd, GATE** | **Resources** |
| Essential Questions are thought- provoking, open-ended questions to be used within daily lessons that and are therefore connected to the Sequence of Learning Outcomes. | Assessments for Learning address Diagnostic, Formative, and Summative assessments used throughout the unit to inform instruction connected to the Sequence of Learning Outcomes.  *Note: These assessments are suggested, not required.* | Sequence of Learning Outcomes is intentionally organized for student success. Each outcome is not necessarily intended to be taught within one class session.  Each Outcome begins with  *Students will be able to…* | **Strategies to support Unit:**  From the *CA Mathematics Framework*   * [“Instructional Strategies”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013instructstrat.pdf) chapter provides research-based strategies for teaching math, K-12 * [“Supporting High Quality Common Core Instruction”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013supportinghqccm.pdf) chapter addresses the development, implementation, and maintenance of high-quality, standards-based mathematics instructional programs   “[Universal Design for Learning](http://www.cast.org/)” from CAST, the Center for Applied Special Technology | **Differentiation support for Unit:**  Use of math journals for differentiation and formative assessment. See [Teaching Channel Video](https://www.teachingchannel.org/videos/math-journals)  **Flexible grouping:**   * Content * Interest * Project/product * Level (Heterogeneous/ Homogeneous)   **Tiered:**   1. Independent Management Plan (Must Do/May Do) 2. Grouping    * Content    * Rigor w/in the concept    * Project-based learning    * Homework    * Grouping    * Formative Assessment   **Anchor Activities:**   * Content-related * Tasks for early finishers * Game * Investigation * Partner Activity * Stations   **Depth and Complexity Prompts/Icons:**   * Depth * Language of the Discipline * Patterns * Unanswered Questions * Rules * Trends * Big Ideas * Complexity   From GA DOE:  [Math Centers (Tubs)](http://gadoe.georgiastandards.org/mathframework.aspx?PageReq=MathCenter)    From SCUSD Wikispace: <http://scusd-math.wikispaces.com/home> | **CCSS Support:**  [CA *Mathematics Framework, “*Grade 5”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf), pp. 24-32, 6-8  [Kansas Association of Teachers of Mathematics (KATM) 5th Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf), pp. 34-46, 6-7  [*North Carolina Department of Public Instruction: Unpacked Content*](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf), pp. 32-43, 7  [*Progression for the Common Core State Standards in Mathematics*: *3–5, Number and Operations – Fractions*](http://commoncoretools.me/wp-content/uploads/2011/08/ccss_progression_nf_35_2013_09_19.pdf)*,* pp.11-14 |
| * What do fractions represent? * How can fractions be used to describe fair or equal shares? * How can using diagrams help you to understand fractions? * How can a number line be used to compare relative sizes of fractions? | From Illustrative Mathematics:   * [“How Much Pie?”](https://www.illustrativemathematics.org/illustrations/858) * [“What is 23 ÷ 5?”](https://www.illustrativemathematics.org/illustrations/292) | 1. Extend understanding of division as equal share to interpret fraction as a result of dividing *a* by *b* using tape diagrams, number lines, and other visual models as representation.   5.NF.3 | A Passion for Fractions: <https://www.teachingchannel.org/videos/multiplying-fractions-lesson>  Connect the understanding of addition and multiplication of fractions to division of whole numbers.  For example: 5 lbs. of walnuts to share among 3 friends 🡪 5 ÷ 3 = =  5 x= ++++ | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 24-29  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.34-36  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 32-33 |
| * How can using diagrams help you to understand fractions? | From Illustrative Mathematics:  [“Painting a Wall”](https://www.illustrativemathematics.org/illustrations/882) | 1. Solve word problems involving fractions and whole numbers. Justify and explain using visual models.   5.NF.3 | Students create story context to represent problems involving whole numbers and relate to multiplication of fractions with whole numbers. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 24-29  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.34-36  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 32-33 |
| * What does it mean to decompose fraction? * How can decomposing fractions help us model fraction multiplication? | From Illustrative Mathematics:  [“Connor and Makayla Discuss Multiplication”](https://www.illustrativemathematics.org/illustrations/321) | 1. Rename an expression in the form of × *q* by decomposing a fraction as *a* groups of and use the Associative Property to regroup the expression as *a × q ÷ b* (or *a* ×) (for example: × 6 = (2 groups of ) x 6 = 2 ×). Use visual fraction models, such as area models, tape diagrams, or number lines to represent the problem.   5.NF.4(a) | Students can begin with examining and interpret × *q* without solving the expression. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 24-29  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.37-39  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 34-36 |
| * What does it mean to decompose fraction? * How can decomposing fractions help us model fraction multiplication? * How can modeling an area help you with multiplying fractional pieces? |  | 1. Given a rectangle, partition into fractional lengths. Show understanding by labeling new unit size (by decomposing the fractions into unit fractions).   5N.F.4(b) | Note: as students are developing concept of multiplying fractions, they will notice that multiplying fractions by fractions, the size of the pieces are “smaller.”  The area model and the line segments show that the area is the same quantity as the product of the side lengths.  (KATM, p. 36) | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 24-29  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.37-39  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 34-36 |
| * How can modeling an area help you with multiplying fractional pieces? |  | 1. Find the area of rectangles with any fractional lengths  using area models to reason and explain the product. Generalize that any fraction expression  is equivalent to .   5.NF.4(a,b) | Have students reason with the generalization of the expression  without evaluating it. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 24-29  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.37-39  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 34-36 |
|  | From Illustrative Mathematics:   * [“Running a Mile”](https://www.illustrativemathematics.org/illustrations/22) * [“Grass Seedlings”](https://www.illustrativemathematics.org/illustrations/143) | 1. Interpret multiplication as scaling by examining how numbers change as they multiply by fractions.   5.NF.5 | Students need ample opportunities to discuss and explain:  1) why when multiplying a fraction greater than 1, the product increases and  2) why when multiplying a fraction less than 1, the product decreases by interpreting the expression (refer to *Mathematics Framework*, p. 30). | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 30-31  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.40-41  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 37-38 |
| * How can modeling an area help you with multiplying fractional pieces? * How can a model help you solve problems involving fractions? | From Illustrative Mathematics:   * [“Running to School”](https://www.illustrativemathematics.org/illustrations/294) * [“Half of a Recipe”](https://www.illustrativemathematics.org/illustrations/296) | 1. Solve real world problems involving multiplication of fractions and mixed numbers by using visual fraction models and record using equations.   5.NF.6 | Students will use equivalent fractions for mixed numbers to solve word problems. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 30-31  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.42-43  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 39-40 |
| * How can you model dividing a unit fraction by a whole number with manipulatives and diagrams? * What does dividing a unit fraction by a whole number look like? * How can a model help you solve problems involving fractions? | From Illustrative Mathematics:  [“Painting a room”](https://www.illustrativemathematics.org/illustrations/957) | 1. Apply and extend previous understandings of division and its relationship between multiplication and division to divide unit fractions by whole numbers in “partitive” division (fair-share) problems.   5.NF.7a | Use visual models such as number lines and area models to support reasoning.  Give students ample opportunities to solve fair share problems to build for conceptual understanding. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 31-32  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.44-47  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 41-44 |
| * How can you model dividing a whole number by a unit fraction with manipulatives and diagram? * What does dividing a whole number by a unit fraction look like? * How can a model help you solve problems involving fractions? | From Illustrative Mathematics:   * [“How many marbles?”](https://www.illustrativemathematics.org/illustrations/1120) * [“How many servings of oatmeal?”](https://www.illustrativemathematics.org/illustrations/829) | 1. Apply and extend previous understandings of division and its relationship between multiplication and division to divide whole numbers by unit fractions in “quotitive” division (measurement) problems.   5.NF.7b | For example,  :    Give students several opportunities to solve measurement division to build for conceptual understanding by using visual models. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 31-32  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.44-47  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 41-44 |
| * How can you model dividing a whole number by a unit fraction with manipulatives and diagram? * What does dividing a whole number by a unit fraction look like? * How can a model help you solve problems involving fractions? | From Illustrative Mathematics:   * r[“Banana Pudding”](https://www.illustrativemathematics.org/illustrations/1196) * [“Dividing by One-Half”](https://www.illustrativemathematics.org/illustrations/12) | 1. Solve real world problems involving dividing unit fractions by whole numbers and dividing whole numbers by unit fractions.   5.NF.7c | Encourage students to use drawings, number lines, or other visual fraction models to justify reasoning. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 31-32  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.44-47  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 41-44 |

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| Unit #5: Geometric Measures of Volume (Approx. # Days- )  Content Standards:5.MD.3-5, 5.NBT.2,.5  In this unit students will understand concepts of volume and relate volume to multiplication and addition,  use understanding of place value system to perform operations with multi-digit whole numbers and with decimals to hundredths. |
| Common Core State Standards-Mathematics:  *Measurement and Data 5.MD*  Geometric measurement: understand concepts of volume and relate volume to multiplication and addition.   1. Recognize volume as an attribute of solid figures and understand concepts of volume measurement.    1. 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.    2. 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. 2. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. 3. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.    1. 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.    2. Apply the formulas *V = l x w x h* and *V = b x 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.    3. Recognize volume as additive. Find volumes of sold figures composed of two non-overlapping right rectangular prisms by adding the volumes of then on-overlapping parts, applying this technique to solve real world problems.   *Number and Operations in Base Ten 5.NBT*  Understand the place value system.   1. 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.   Perform operations with multi-digit whole numbers and with decimals to hundredths.   1. Fluently multiply multi-digit whole numbers using the standard algorithm.   **Standards for Mathematical Practice:**  SMP. 1 Make sense of problems and persevere in solving them  SMP. 2 Reason abstractly and quantitatively  SMP. 3 Construct viable argument and critique the reasoning of others  SMP. 4 Model with mathematics  SMP. 5 Use appropriate tools strategically  SMP. 6 Attend to precision  SMP. 7 Look for and make use of structure  SMP. 8 Look for and express regularity in repeated reasoning  **SEL Competencies:**  Self-awareness  Self-management  Social awareness  Relationship skills  Responsible decision-making  **ELD Standards to Support Unit:**  **Part I: Interacting in Meaningful Ways**   1. Collaborative 2. Exchanging information and ideas with others through oral collaborative conversations on a range of social and academic topics 3. Interacting with others in written English in various communicative forms (print, communicative technology, and multimedia 4. Offering and supporting opinions and negotiating with others in communicative exchanges 5. Adapting language choices to various contexts (based on task, purpose, audience, and text type) 6. Interpretive 7. Listening actively to spoken English in a range of social and academic contexts 8. Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language   8. Analyzing how writers and speakers use vocabulary and other language resources for specific purposes (to explain, persuade, entertain, etc.) depending on modality, text type, purpose, audience, topic, and content area   1. Productive 2. Expressing information and ideas in formal oral presentations on academic topics 3. Supporting own opinions and evaluating others’ opinions in speaking and writing 4. Selecting and applying varied and precise vocabulary and language structures to effectively convey ideas   **Part II. Learning About How English Works**   1. Structuring Cohesive Texts    1. Understanding text structure    2. Understanding cohesion 2. Expanding and Enriching Ideas 3. Modifying to add details 4. Connecting and Condensing Ideas 5. Connecting ideas 6. Condensing ideas |

| Unit #5: Geometric Measures of Volume | | | | | |
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| **Essential**  **Questions** | **Assessments**  **for Learning** | **Sequence of Learning Outcomes**  5.MD.3-5, 5.NBT.2, 5 | **Strategies**  **for Teaching and Learning** | **Differentiation**  **e.g. EL, SpEd, GATE** | **Resources** |
| Essential Questions are thought- provoking, open-ended questions to be used within daily lessons that and are therefore connected to the Sequence of Learning Outcomes. | Assessments for Learning address Diagnostic, Formative, and Summative assessments used throughout the unit to inform instruction connected to the Sequence of Learning Outcomes.  *Note: These assessments are suggested, not required.* | Sequence of Learning Outcomes is intentionally organized for student success. Each outcome is not necessarily intended to be taught within one class session.  Each Outcome begins with  *Students will be able to…* | **Strategies to support Unit:**  From the *CA Mathematics Framework*   * [“Instructional Strategies”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013instructstrat.pdf) chapter provides research-based strategies for teaching math, K-12 * [“Supporting High Quality Common Core Instruction”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013supportinghqccm.pdf) chapter addresses the development, implementation, and maintenance of high-quality, standards-based mathematics instructional programs   “[Universal Design for Learning](http://www.cast.org/)” from CAST, the Center for Applied Special Technology | **Differentiation support for Unit:**  Use of math journals for differentiation and formative assessment. See [Teaching Channel Video](https://www.teachingchannel.org/videos/math-journals)  **Flexible grouping:**   * Content * Interest * Project/product * Level (Heterogeneous/ Homogeneous)   **Tiered:**   1. Independent Management Plan (Must Do/May Do) 2. Grouping    * Content    * Rigor w/in the concept    * Project-based learning    * Homework    * Grouping    * Formative Assessment   **Anchor Activities:**   * Content-related * Tasks for early finishers * Game * Investigation * Partner Activity * Stations   **Depth and Complexity Prompts/Icons:**   * Depth * Language of the Discipline * Patterns * Unanswered Questions * Rules * Trends * Big Ideas * Complexity   From GA DOE:  [Math Centers (Tubs)](http://gadoe.georgiastandards.org/mathframework.aspx?PageReq=MathCenter)    From SCUSD Wikispace: <http://scusd-math.wikispaces.com/home> | **CCSS Support:**  [CA *Mathematics Framework,* “Grade 5”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf), pp. 34-37  [Kansas Association of Teachers of Mathematics (KATM) 5th Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf), pp.52-55  [*North Carolina Department of Public Instruction: Unpacked Content*](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf), pp. 47-51  [*Progression for the Common Core State Standards in Mathematics*: *K–5, Measurement and Data*](file:///C:\â¢%09http\::commoncoretools.me:wp-content:uploads:2011:04:ccss_progression_nbt_2011_04_073_corrected2.pdf) *,* pp. 2-5, 26-27 |
| * How can objects be represented and compared using geometric attributes? * How are area and volume similar and different? * How do you represent the inside of a three-dimensional figure? |  | 1. Describe volume as an attribute of three-dimensional space by comparing and contrasting two-dimensional figures with three-dimensional figures. Students understand that three-dimensional figures are solid figures.   5.MD.3 | Use realia to help students visualize: circles vs spheres, rectangles vs rectangular prisms, square vs cubes, etc.  Students explain the similarities and differences using graphic organizer such as a Venn diagram. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 34-37  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.52-56  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 47-51 |
| * How do you represent the inside of a three-dimensional figure? * Why is volume represented with cubic units and area represented with square units? |  | 1. Understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume and is written with an exponent of 3, for example, unitᶟ (or inᶟ mᶟ, etc.).   5.MD.3a | Students can continue to compare the difference between measuring linear measurements (perimeter, distance, or length), area, and volume. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 34-37  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.52-56  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 47-51 |
| * How do you represent the inside of a three-dimensional figure? * How can you find the volume of cubes and rectangular prisms? * What is the relationship between volumes of geometric solids? | From Illustrative Mathematics: [“Box of Clay”](https://www.illustrativemathematics.org/illustrations/1031) | 1. Estimate how many cubic units would be needed to pack a rectangular prism representing the total number of unit cubes needed with exponents of \_\_ unitᶟ. Students understand that solid figures can be packed without gaps or overlaps.   5.MD.3b | Have students share their thoughts and strategies in estimating the amount of cubic units to pack into the pencil box or other rectangular prisms, or three-dimensional arrays. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 34-37  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.52-56  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 47-51 |
| * How do you represent the inside of a three-dimensional figure? * How can you measure volume? * How can you find the volume of cubes and rectangular prisms? * What is the relationship between volumes of geometric solids? |  | 1. Explore volume by packing and counting the unit cubes, without gaps or overlapping, layer by layer into the rectangular prism.   5.MD.4 | Allow ample opportunities for students to develop the concept of volume by counting packed unit cubes to form a rectangular prism (for example, tissue boxes, cereal boxes, etc.) before asking students to use the formula to find the volume. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 34-37  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.52-56  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 47-51 |
| * How do you represent the inside of a three-dimensional figure? * How can you find the volume of cubes and rectangular prisms? * What is the relationship between volumes of geometric solids? |  | 1. Find the volume of any rectangular prism when given side lengths by adding every layer and by multiplying the side lengths. Reason that the total number of cubic units stays the same (yields the same measurement volume) whether counting all, adding every layer, or multiplying all side lengths.   5.MD.5a | Students begin to notice that each layer represent the area of the base of the rectangular prism.  Students stack the unit cubes in layers. Students explain that building layers of an area will form the height of the 3-dimensional figures.  Students can use multiplication based on their knowledge of array models to find each layer (area). Students can use additive thinking to add each layer to get the total (refer to KATM, p.53). | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 34-37  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.52-56  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 47-51 |
| * How do you represent the inside of a three-dimensional figure? * Why are some tools better to use than other when measuring volume? | From Illustrative Mathematics: [“Using Volume to Understand the Associative Property of Multiplication](https://www.illustrativemathematics.org/illustrations/1655)” | 1. Use the Associative Property of Multiplication and decomposition of numbers (for example, 60 = 6 × 10) to investigate rectangular prisms with a given number of cubic units.   5.MD.5a | Example:  Students make as many rectangular prisms as possible with a volume of 24 cubic units and record possible dimensions. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 34-37  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.52-56  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 47-51 |
| * How do you represent the inside of a three-dimensional figure? * Why are some tools better to use than other when measuring volume? | From Illustrative Mathematics: [”You Can Multiply Three Numbers in Any Order](https://www.illustrativemathematics.org/illustrations/1631)” | 1. Solve real world problems to find the volume of rectangular prisms by applying the formulas   *V = ℓ × 𝑤 × h* and *V = b × h* (where *b* is the area of the base).  5.MD.5b | Ask students if they could get to a more efficient way to add each layer (after they have multiplied the rows by the columns or vice versa. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 34-37  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.52-56  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 47-51 |
| * How do you represent the inside of a three-dimensional figure? | From Illustrative Mathematics: [“Cari's Aquarium](https://www.illustrativemathematics.org/illustrations/1308)” | 1. Find the volume of composite figures (with non-overlapping parts) using the understanding that volume is additive.   5.MD.5c    5.MD.5c |  | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 34-37  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.52-56  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 47-51 |
| * How do you represent the inside of a three-dimensional figure? * What is the relationship between volumes of geometric solids? |  | 1. Select appropriate units, strategies, and tools for solving problems involving estimating and measuring volume.   5.MD.5 |  | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 34-37  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.52-56  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 47-51 |

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| Unit #6: Numerical Expressions, Patterns, and Relationships (Approx. # Days- )  Content Standards: 5.OA.1-3, 5.G.1-2  In this unit students will write and interpret numerical expressions, analyze patterns and relationships, and graph points on the coordinate plane to solve real-world problems. |
| Common Core State Standards-Mathematics:  *Operations and Algebraic Thinking 5.OA*  Write and interpret numerical expressions.   1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. 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 x (8 + 7). Recognize that 3 x (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*   2.1 Express a whole number in the range 2–50 as a product of its prime factors. For example, find the prime factors of 24 and express 24 as 2 × 2 × 2 × 3. CA  Analyze patterns and relationships.   1. 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.*   ***Geometry 5.G***  **Graph points on the coordinate plane to solve real-world and mathematical problems.**   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 it 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). 2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate value of points in the context of the situation.     **SEL Competencies:**  Self-awareness  Self-management  Social awareness  Relationship skills  Responsible decision-making  **Standards for Mathematical Practice:**  SMP. 1 Make sense of problems and persevere in solving them  SMP. 2 Reason abstractly and quantitatively  SMP. 3 Construct viable argument and critique the reasoning of others  SMP. 4 Model with mathematics  SMP. 6 Attend to precision  SMP. 7 Look for and make use of structure  SMP. 8 Look for and express regularity in repeated reasoning  **ELD Standards to Support Unit:**  **Part I: Interacting in Meaningful Ways**   1. Collaborative    1. Exchanging information and ideas with others through oral collaborative conversations on a range of social and academic topics    2. Interacting with others in written English in various communicative forms (print, communicative technology, and multimedia    3. Offering and supporting opinions and negotiating with others in communicative exchanges    4. Adapting language choices to various contexts (based on task, purpose, audience, and text type) 2. Interpretive 3. Listening actively to spoken English in a range of social and academic contexts 4. Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language   8. Analyzing how writers and speakers use vocabulary and other language resources for specific purposes (to explain, persuade, entertain, etc.) depending on modality, text type, purpose, audience, topic, and content area   1. Productive 2. Expressing information and ideas in formal oral presentations on academic topics 3. Supporting own opinions and evaluating others’ opinions in speaking and writing 4. Selecting and applying varied and precise vocabulary and language structures to effectively convey ideas   **Part II. Learning About How English Works**   1. Structuring Cohesive Texts    1. Understanding text structure    2. Understanding cohesion 2. Expanding and Enriching Ideas 3. Modifying to add details 4. Connecting and Condensing Ideas 5. Connecting ideas 6. Condensing ideas |

| Unit #6: Numerical Expressions, Patterns, and Relationships | | | | | |
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| **Essential**  **Questions** | **Assessments**  **for Learning** | **Sequence of Learning Outcomes**  **5.OA.1-3, 5.G.1-.2** | **Strategies**  **for Teaching and Learning** | **Differentiation e.g. EL, SpEd, GATE** | **Resources** |
| Essential Questions are thought- provoking, open-ended questions to be used within daily lessons that and are therefore connected to the Sequence of Learning Outcomes. | Assessments for Learning address Diagnostic, Formative, and Summative assessments used throughout the unit to inform instruction connected to the Sequence of Learning Outcomes.  *Note: These assessments are suggested, not required.* | Sequence of Learning Outcomes is intentionally organized for student success. Each outcome is not necessarily intended to be taught within one class session.  Each Outcome begins with  *Students will be able to…* | **Strategies to support Unit:**  From the *CA Mathematics Framework*   * [“Instructional Strategies”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013instructstrat.pdf) chapter provides research-based strategies for teaching math, K-12 * [“Supporting High Quality Common Core Instruction”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013supportinghqccm.pdf) chapter addresses the development, implementation, and maintenance of high-quality, standards-based mathematics instructional programs   “[Universal Design for Learning](http://www.cast.org/)” from CAST, the Center for Applied Special Technology | **Differentiation support for Unit:**  Use of math journals for differentiation and formative assessment. See [Teaching Channel Video](https://www.teachingchannel.org/videos/math-journals)  **Flexible grouping:**   * Content * Interest * Project/product * Level (Heterogeneous/ Homogeneous)   **Tiered:**   1. Independent Management Plan (Must Do/May Do) 2. Grouping    * Content    * Rigor w/in the concept    * Project-based learning    * Homework    * Grouping    * Formative Assessment   **Anchor Activities:**   * Content-related * Tasks for early finishers * Game * Investigation * Partner Activity * Stations   **Depth and Complexity Prompts/Icons:**   * Depth * Language of the Discipline * Patterns * Unanswered Questions * Rules * Trends * Big Ideas * Complexity   From GA DOE:  [Math Centers (Tubs)](http://gadoe.georgiastandards.org/mathframework.aspx?PageReq=MathCenter)    From SCUSD Wikispace: <http://scusd-math.wikispaces.com/home> | **CCSS Support for the Unit:**  [CA *Mathematics Framework,* “Grade 5”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf), pp. 6-10, 37-39  [Kansas Association of Teachers of Mathematics (KATM) 5th Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf), pp.4-11, 57-61  [*North Carolina Department of Public Instruction: Unpacked Content*](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf), pp. 5-10, 52-57  [*Progressions for the Common Core State Standards in Mathematics*: *K, Counting & Cardinality; K–5, Operations & Algebraic Thinking*](http://commoncoretools.files.wordpress.com/2011/05/ccss_progression_cc_oa_k5_2011_05_302.pdf) *,* pp. 2-3, 32-33  [*Progressions for the Common Core State Standards in Mathematics: K-6 Geometry*](http://commoncoretools.files.wordpress.com/2012/06/ccss_progression_g_k6_2012_06_27.pdf), pp.2-5, 16-17  [Georgia Department of Education](https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_5_Unit1FrameworkSE.pdf) Unit 1 Framework  [**Georgia Department of Education**](https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_5_Unit5FrameworkSE.pdf)Unit 5 Framework |
| * What is the difference between an expression and an equation? * Why is the order important when evaluating or solving expressions and equations? | From Illustrative Mathematics:  [“Watch Out for Parentheses 1”](https://www.illustrativemathematics.org/illustrations/555) | 1. Interpret and describe numerical expressions of whole numbers containing only one set of grouping symbols (parentheses, brackets, **or** braces) without evaluating the expressions.   5.OA.1 | Students need ample opportunities to work with expressions that use grouping symbols throughout the school year to develop understanding of when and how to use parentheses ( ), brackets [ ], **OR** braces { }.  Students should **not** work with expressions with nested grouping symbols, such as the order of first evaluating terms in parentheses, then brackets, and then braces. At this level, students are learning the grouping symbols individually, but are not working with the grouping as a combination.   |  |  | | --- | --- | | 2 × (3 + 4) | Add 3 and 4, then double it (or multiply that by 2) | | (26 + 18) ÷ 4 | Add 26 and 18, then divide the new number into 4 equal groups | | 5 × (17,456 + 897) | There is 5 times as much as (17,456 + 897) | | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 6-8  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.4-5  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 5-6 |
| * What is the difference between an expression and an equation? * Why is the order important when evaluating or solving expressions and equations? * How can you evaluate expressions? | From Illustrative Mathematics:  [“Using Operations and Parentheses”](https://www.illustrativemathematics.org/illustrations/1596) | 1. Interpret and describe numerical expressions of decimal and fractional numbers containing only one set of grouping symbols (parentheses, brackets, **or** braces) without evaluating the expressions.   5.OA.1 | Students apply their knowledge of whole number expressions to expressions with decimals and fractions. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 6-8  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.4-5  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 5-6 |
| * What is the difference between an expression and an equation? * Why is the order important when evaluating or solving expressions and equations? * How can you write an expression that corresponds to a situation? | From Illustrative Mathematics:  [“Seeing is Believing”](https://www.illustrativemathematics.org/illustrations/1222) | 1. Write numerical expressions from words or phrases without calculating the value.  |  |  | | --- | --- | | T | Take today’s date (ex: the 5th) and double it. | | S | 5 × 2 |  |  |  | | --- | --- | | T | Write an expression for the steps “double three and then add 18.” | | S | (2 × 3) + 18 |   5.OA.2 | Students verbally describe the relationship between expressions without actually calculating them. Students apply their reasoning of the four operations as well as place value while describing the relationship between numbers.  Students do not use variables, when writing these expressions, only numbers and signs for operations.  Give students ample opportunities to hear and write numerical expressions with multiple “steps.”  This can be done as warm-ups throughout the year. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 6-8  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.6-7  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 7 |
| * How are numerical patterns related to two sets of given rules? * How can numerical patterns be expressed? |  | 1. Generate two numerical patterns when given two rules.   5.OA.3 | In fourth grade, students generated numerical patterns when given one rule.  Remind students of the simple expressions used previously to help with applying these “rules.” | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 9-10  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.8-11  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 8-10 |
| * How are numerical patterns related to two sets of given rules? * How can numerical patterns be expressed? |  | 1. Analyze the relationships between the numerical patterns and the rules. Create a table to represent the pattern, or sequences.   5.OA.3 | Encourage students to place the patterns, or sequences into a T-chart to further help them see the connection between the graph and the sequences. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 9-10  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.8-11  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 8-10 |
| * How are number lines related to coordinate planes? * How does the coordinate system show relationships between two sets of data or numbers? * How are coordinate grids helpful in organizing information? * What is the relationship between the numbers from different axes on a coordinate grid? |  | 1. Draw a pair of perpendicular number lines, called axes, to form a coordinate plane and label the appropriate units on each number line.   5.G.1 | Students build their knowledge of number lines to combine a vertical number line with a horizontal number line.  This is the first time students work with coordinate planes.  Students need ample opportunities to create coordinate planes. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 37-39  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.57-59  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 52-53 |
| * How do you interpret the data you have graphed? * How are coordinate grids helpful in organizing information? * What is the relationship between the numbers from different axes on a coordinate grid? * How can the linear graph show the relationship between the two numbers on a coordinate grid? | From GA DOE:  [“Air Traffic Controller”](https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_5_Unit5FrameworkSE.pdf) pp.19-24 | 1. Form ordered pairs (from previously generated rules) and plot on the coordinate plane. Students interpret the graph.   5.G.1 | Even though students have drawn a coordinate plane where negative integers could be placed, 5th grade students only deal with positive integers. Therefore, only the first quadrant (positive numbers) of the coordinate plane will be used.  Students should notice the graph is a linear graph based on the generated rules. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 37-39  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.57-59  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 52-53 |
| * How do you interpret the data you have graphed? * How are coordinate grids helpful in organizing information? * What is the relationship between the numbers from different axes on a coordinate grid? * How can the linear graph show the relationship between the two numbers on a coordinate grid? | From Illustrative Mathematics:  [“Meerkat Coordinate Plane Task”](https://www.illustrativemathematics.org/illustrations/1516) | 1. Represent real world situations by graphing data on the first quadrant of the coordinate grid. Interpret the graph.   5.G.2 | See above. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 37-39  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.61-61  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 54 |

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| Unit #7: Two-dimensional Figures (Approx. # Days- )  Content Standards: 5.G.3-4  In this unit students will classify two-dimensional figures into categories based on their properties. |
| Common Core State Standards-Mathematics:  *Geometry 5.G*  Classify two-dimensional figures into categories based on their properties.   1. Understand that attributes belonging to category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles, so all squares have four right angles.* 2. Classify two-dimensional figures in a hierarchy based on properties.   **Standards for Mathematical Practice:**  SMP. 1 Make sense of problems and persevere in solving them  SMP. 2 Reason abstractly and quantitatively  SMP. 3 Construct viable argument and critique the reasoning of others  SMP. 4 Model with mathematics  SMP. 5 Use appropriate tools strategically  **SEL Competencies:**  Self-awareness  Self-management  Social awareness  Relationship skills  Responsible decision-making  SMP. 6 Attend to precision  SMP. 7 Look for and make use of structure  SMP. 8 Look for and express regularity in repeated reasoning  **ELD Standards to Support Unit:**  **Part I: Interacting in Meaningful Ways**   1. Collaborative 2. Exchanging information and ideas with others through oral collaborative conversations on a range of social and academic topics 3. Interacting with others in written English in various communicative forms (print, communicative technology, and multimedia 4. Offering and supporting opinions and negotiating with others in communicative exchanges 5. Adapting language choices to various contexts (based on task, purpose, audience, and text type) 6. Interpretive 7. Listening actively to spoken English in a range of social and academic contexts 8. Reading closely literary and informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language   8. Analyzing how writers and speakers use vocabulary and other language resources for specific purposes (to explain, persuade, entertain, etc.) depending on modality, text type, purpose, audience, topic, and content area   1. Productive 2. Expressing information and ideas in formal oral presentations on academic topics 3. Supporting own opinions and evaluating others’ opinions in speaking and writing 4. Selecting and applying varied and precise vocabulary and language structures to effectively convey ideas   **Part II. Learning About How English Works**   1. Structuring Cohesive Texts    1. Understanding text structure    2. Understanding cohesion 2. Expanding and Enriching Ideas 3. Modifying to add details 4. Connecting and Condensing Ideas 5. Connecting ideas 6. Condensing ideas |

| Unit #7: Two-dimensional Figures | | | | | |
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| **Essential**  **Questions** | **Assessments**  **for Learning** | **Sequence of Learning Outcomes**  **5.G.3-4** | **Strategies**  **for Teaching and Learning** | **Differentiation**  **e.g. EL, SpEd, GATE** | **Resources** |
| Essential Questions are thought- provoking, open-ended questions to be used within daily lessons that and are therefore connected to the Sequence of Learning Outcomes. | Assessments for Learning address Diagnostic, Formative, and Summative assessments used throughout the unit to inform instruction connected to the Sequence of Learning Outcomes.  *Note: These assessments are suggested, not required.*  End-of-Unit assessment from GA DOE:[“Shapely Pairs”](https://www.georgiastandards.org/Common-Core/Common%20Core%20Frameworks/CCGPS_Math_5_Unit6FrameworkSE.pdf) pp.66-75 | Sequence of Learning Outcomes is intentionally organized for student success. Each outcome is not necessarily intended to be taught within one class session.  Each Outcome begins with  *Students will be able to…* | **Strategies to support Unit:**  From the *CA Mathematics Framework*   * [“Instructional Strategies”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013instructstrat.pdf) chapter provides research-based strategies for teaching math, K-12 * [“Supporting High Quality Common Core Instruction”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013supportinghqccm.pdf) chapter addresses the development, implementation, and maintenance of high-quality, standards-based mathematics instructional programs   “[Universal Design for Learning](http://www.cast.org/)” from CAST, the Center for Applied Special Technology | **Differentiation support for Unit:**  Use of math journals for differentiation and formative assessment. See [Teaching Channel Video](https://www.teachingchannel.org/videos/math-journals)  **Flexible grouping:**   * Content * Interest * Project/product * Level (Heterogeneous/ Homogeneous)   **Tiered:**   1. Independent Management Plan (Must Do/May Do) 2. Grouping    * Content    * Rigor w/in the concept    * Project-based learning    * Homework    * Grouping    * Formative Assessment   **Anchor Activities:**   * Content-related * Tasks for early finishers * Game * Investigation * Partner Activity * Stations   **Depth and Complexity Prompts/Icons:**   * Depth * Language of the Discipline * Patterns * Unanswered Questions * Rules * Trends * Big Ideas * Complexity   From GA DOE:  [Math Centers (Tubs)](http://gadoe.georgiastandards.org/mathframework.aspx?PageReq=MathCenter)    From SCUSD Wikispace: <http://scusd-math.wikispaces.com/home> | **CCSS Support for the Unit:**  [CA *Mathematics Framework,* “Grade 5”](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf), pp. 39-40  [Kansas Association of Teachers of Mathematics (KATM) 5th Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf), pp.62 -65  [*North Carolina Department of Public Instruction: Unpacked Content*](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf), pp.55-57  [*Progression for the Common Core State Standards in Mathematics*: *K-6, Geometry*](http://commoncoretools.files.wordpress.com/2012/06/ccss_progression_g_k6_2012_06_27.pdf)*,* pp.2-5, 16-17 |
| * Where in the real world can you find shapes? * In what ways can you match figures to real-life objects? * How can objects be represented and compared using geometric attributes? |  | 1. Describe and reason about attributes of geometric shapes (such as trapezoids, triangles, squares, etc.) based on properties of sides (parallel, perpendicular, and congruent).   5.G.3 | In previous years, students described and compared properties of 2-dimensional shapes and built, drew, and analyzed these shapes. At this level, students reason about the attributes of 2-dimensional shapes and to classify these shapes in a hierarchy based on properties. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 39-40  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.62-63  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 55 |
| * Where in the real world can you find shapes? * In what ways can you match figures to real-life objects? * How can objects be represented and compared using geometric attributes? |  | 1. Describe and reason about attributes of geometric shapes (such as trapezoids, triangles, squares, etc.) based on properties of angles (type, measurement, and congruent).   5.G.3 | Students can use graphic organizers (for example, T-charts or other organizers) to compare and contrast the attributes, or properties of geometric figures.  **Common Misconceptions:**  Students think that once shapes are placed or described under one category, those categories are the only classification that can be used. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 39-40  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.62-63  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 55 |
| * Where in the real world can you find shapes? * In what ways can you match figures to real-life objects? * How can objects be represented and compared using geometric attributes? |  | 1. Describe and reason about attributes of geometric shapes (such as trapezoids, triangles, squares, etc.) based on properties of symmetry (point and line).   5.G.3 | See above. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 39-40  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.62-63  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 55 |
| * Why is there hierarchy in categorizing figures? * How can knowing attributes or properties of figures help you solve problems? |  | 1. Explain that attributes belonging to a category of 2-dimensional figures also belong to all subcategories of that category.   5.G.3 | Students can use a Venn diagram to show classification of quadrilaterals. | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 39-40  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.62-63  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 55 |
| * How can knowing attributes or properties of figures help you solve problems? | From Inside Mathematics:  [“Sort Shapes”](http://www.insidemathematics.org/common-core-math-tasks/5th-grade/5-2006%20Sorting%20Shapes.pdf)  From Illustrative Mathematics: [“What is a Trapezoid? (Part 2)”](https://www.illustrativemathematics.org/illustrations/1505) | 1. Classify 2-dimensional figures in a hierarchy based on properties and explain the relationships between categories.   5.G.4 |  | [CA Framework](http://www.cde.ca.gov/ci/ma/cf/documents/aug2013gradefive.pdf) p. 39-40  [Flipbook](http://katm.org/wp/wp-content/uploads/flipbooks/5th-Flipbookedited2.pdf) p.64-66  [NC Unpacking](http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/5th.pdf) p. 56 |