A Correlation of

enVision® Mathematics

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To the

Georgia Standards of Excellence 2015-2016 Mathematics Grade 4

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to the Georgia Standards of Excellence 2015-2016 – Mathematics

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Standards for Mathematical Practice	
Students are expected to:	
1. Make sense of problems and persevere in solving them. In fourth grade, students know that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. Fourth graders may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, "Does this make sense?" They listen to the strategies of others and will try different approaches. They often will use another method to check their answers.	**enVision** Mathematics provides numerous instructional opportunities to help students develop proficiency in the math practices. To get students off to a good start on all eight practices, use the Math Practices and Problem Solving Handbook pages at SavvasRealize.com, along with the Math Practices Posters, and supporting Math Practices Animations. Each lesson begins with Problem-Based Learning, an activity in which students interact with their peers and teachers to make sense of and decide on a workable solution for a situation. Another feature of each lesson is the set of problem-solving exercises in which students persevere by applying different skills and strategies to solve problems. Each Problem-Solving Lesson provides instruction and practice focused on a specific math practice. **SE/TE:** 13–16, 21–24, 49–52, 53–56, 65–68, 81–84, 105–108, 109–112, 153–156, 205–208, 233–236, 237–240, 245–248, 261–264, 293–296
2. Reason abstractly and quantitatively. Fourth graders should recognize that a number represents a specific quantity. They connect the quantity to written symbols and create a logical representation of the problem at hand, considering both the appropriate units involved and the meaning of quantities. They extend this understanding from whole numbers to their work with fractions and decimals. Students write simple expressions, record calculations with numbers, and represent or round numbers using place value concepts.	**enVision** Mathematics provides scaffolded instruction to help students develop both quantitative and abstract reasoning. In the Visual Learning Bridge, students can see how to represent a given situation numerically or algebraically. They will have opportunities later in the lesson to reason abstractly as they endeavor to represent situations symbolically. Reasonableness exercises remind students to compare their work to the original situation. Reasoning problems throughout the exercise sets focus students' attention on the structure or meaning of an operation, for example, rather than merely the solution. **SE/TE:** 5–8, 9–12, 13–16, 17–20, 21–24, 41–44, 57–60, 61–64, 65–68, 81–84, 85–88, 105–108, 129–132, 133–136, 137–140

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3. Construct viable arguments and critique the reasoning of others. In fourth grade, students may construct arguments using concrete referents, such as objects, pictures, and drawings. They explain their thinking and make connections between models and equations. They refine their mathematical communication skills as they participate in mathematical discussions involving questions like "How did you get that?" and "Why is that true?" They explain their thinking to others and respond to others' thinking.	Consistent with a focus on reasoning and sense-making is a focus on critical reasoning—argumentation and critique of arguments. In **enVision** Mathematics, the Problem-Based Learning affords students opportunities to share with classmates their thinking about problems, their solution methods, and their reasoning about the solutions. Many exercises found throughout the program specifically call for students to justify or explain their solutions. The ability to articulate a clear explanation for a process is a stepping stone to critical analysis and reasoning of both the student's own processes and those of others. **SE/TE:** 9–12, 17–20, 21–24, 37–40, 41–44, 45–48, 49–52, 57–60, 61–6**,** 85–88, 101–104, 137–140, 149–152, 177–180, 181–184
4. Model with mathematics. Students experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, making a chart, list, or graph, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed. Fourth graders should evaluate their results in the context of the situation and reflect on whether the results make sense.	Students using **enVision** Mathematics are introduced to mathematical modeling in the early grades. They first use manipulatives and drawings and then equations to model addition and subtraction situations. The Visual Learning Bridge and Visual Learning Animation Plus often present real-world situations, and students are shown how these can be modeled mathematically. In later grades, students expand their modeling skills to include representations such as tables and graphs, as well as equations. **SE/TE:** 5–8, 13–16, 65–68, 89–92, 93–96, 109–112**,** 133–136, 141–144, 145–148, 153–156, 169–172, 177–180, 181–184, 185–188, 193–196

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5. Use appropriate tools strategically. Fourth graders consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be helpful. For instance, they may use graph paper or a number line to represent and compare decimals and protractors to measure angles. They use other measurement tools to understand the relative size of units within a system and express measurements given in larger units in terms of smaller units.	Students become fluent in the use of a wide assortment of tools ranging from physical objects, including manipulatives, rulers, protractors, and even pencil and paper, to digital tools, such as Online Math Tools and computers. As students become more familiar with the tools available to them, they are able to begin making decisions about which tools are most helpful in a particular situation. **SE/TE:** 17–20, 45–48, 53–56, 97–100, 133–136, 193–196, 245–248, 293–296, 297–300, 313–316, 317–320, 333–336, 337–340, 345–348, 353–356
6. Attend to precision. As fourth graders develop their mathematical communication skills, they try to use clear and precise language in their discussions with others and in their own reasoning. They are careful about specifying units of measure and state the meaning of the symbols they choose. For instance, they use appropriate labels when creating a line plot.	Students are expected to use mathematical terms and symbols with precision. Key terms and concepts are highlighted in each lesson. The Problem-Based Learning activity provides repeated opportunities for students to use precise language to explain their solution paths while solving problems. In the Convince Me! feature, students revisit these key terms or concepts and provide explicit definitions or explanations. **SE/TE:** 21–24, 37–40, 97–100, 105–108, 153–156, 197–200, 245–248, 269–272, 305–308, 345–348, 393–396, 417–420, 449–452, 465–468, 481–484
7. Look for and make use of structure. In fourth grade, students look closely to discover a pattern or structure. For instance, students use properties of operations to explain calculations (partial products model). They relate representations of counting problems such as tree diagrams and arrays to the multiplication principal of counting. They generate number or shape patterns that follow a given rule.	Students are encouraged to look for structure as they develop solution plans. As students mature in their mathematical thinking, they look for structure in numerical operations by focusing on place value and properties of operations. This focus on looking for and recognizing structure enables students to draw from patterns as they formalize their thinking about the structure of operations. **SE/TE:** 5–8**,** 37–40, 45–48, 53–56, 57–60, 61–64, 81–84, 89–92, 93–96, 97–100, 101–104**,** 129–132, 141–144, 145–148, 149–152

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8. Look for and express regularity in repeated reasoning. Students in fourth grade should notice repetitive actions in computation to make generalizations Students use models to explain calculations and understand how algorithms work. They also use models to examine patterns and generate their own algorithms. For example, students use visual fraction models to write equivalent fractions.	Students are prompted to look for repetition in computations to help them develop shortcuts and become more efficient problem solvers. Students are reminded to think about problems they have encountered previously that may share features or processes. They are encouraged to draw on the solution plan developed for such problems, and, as their mathematical thinking matures, to look for and apply generalizations to similar situations. The Problem-Based Learning activities offer students opportunities to look for regularity in the way operations behave. **SE/TE:** 9–12**,** 49–52, 269–272**,** 309–312**,** 361–364, 365–368, 389–392**,** 421–424**,** 461–464**,** 481–484, 485–488, 489–492, 497–500**,** 521–524**,** 557–560
Operations and Algebraic Thinking 4.OA	
Use the four operations with whole numbers to solve problems.	
MGSE4.OA.1 Understand that a multiplicative comparison is a situation in which one quantity is multiplied by a specified number to get another quantity.	**SE:** 223–224, 225–228, 229–232, Reteaching 251, Set A **TE:** 223–224A, 225A–228B, 229A–232B, Reteaching 251, Set A
a. Interpret a multiplication equation as a comparison e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5.	**SE:** 223–224, 225–228, 229–232, Reteaching 251, Set A **TE:** 223–224A, 225A–228B, 229A–232B, Reteaching 251, Set A
b. Represent verbal statements of multiplicative comparisons as multiplication equations.	**SE:** 223–224, 225–228, 229–232, Reteaching 251, Set A **TE:** 223–224A, 225A–228B, 229A–232B, Reteaching 251, Set A

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MGSE4.OA.2 Multiply or divide to solve word problems involving multiplicative comparison. Use drawings and equations with a symbol or letter for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	**SE:** 85–88, 223–224, 225–228, 229–232, 233–236, 237–240, 241–244, 245–248, Reteaching 251–252, Sets A, B, D, 260 **TE:** 85A–88B, 223–224A, 225A–228B, 229A–232B, 233A–236B, 237A–240B, 241A–244B, 245A–248B, Reteaching 251–252, Sets A, B, D, 260–260C
MGSE4.OA.3 Solve multistep word problems with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a symbol or letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**SE:** 41–44, 45–48, 49–52, 53–56, 57–60, 61–64, 65–68, Reteaching 71–72, Sets B, F, 80, 85–88, 97–100, 105–108, 109–112, Reteaching 115, 117–118, Sets B, G, H, 137–140, 141–144, 149–152, Reteaching 159, Set C, 168, 173–176, 177-180, 181-184, 193–196, 197–120, 205–208, Reteaching 211–214, Sets B, H, 233–236, 237–240, 241–244, 245–248, Reteaching 251, Set B, 260, 260, 481–484, 485–488, 489–492, 493–496, 497–500, 501–504, 505–508, 529–532, 569–572 **TE:** 41A–44B, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, 65A–68B, Reteaching 71–72, Sets B, F, 80–80C, 85A–88B, 97A–100B, 105A-108B, 109A–112B, Reteaching 115, 117–118, Sets B, G, H, 137A–140B, 141A–144B, 149A–152B, Reteaching 159–160, Set C, 168–168C, 173A–176B, 177A–180B, 181A–184B, 193A–196B, 197A–120B, 205A–208B, Reteaching 211–214, Sets B, H, 233A–236B, 237A–240B, 241A–244B, 245A–248B, Reteaching 251, Set B, 260–260A, 260–260C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, 529A–532B, 569A–572B
Gain familiarity with factors and multiples.	
MGSE4.OA.4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	**SE:** 260, 261–264, 265–268, 269–272, 273–276, 277–280, Reteaching 283–284, Sets A–E, 305–308, 521–524, 525–528 **TE:** 260–260C, 261A–264B, 265A–268B, 269A–272B, 273A–276B, 277A–280B, Reteaching 283–284, Sets A–E, 305A–308B, 521A–524B, 525A–528B

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Generate and analyze patterns.	
MGSE4.OA.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. Explain informally why the pattern will continue to develop in this way. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers.*	**SE:** 519–520, 521–524, 525–528, 529–532, 533–536, Reteaching 539–540, Sets A–D, 589–592 **TE:** 519–520A, 521A–524B, 525A–528B, 529A–532B, 533A–536B, Reteaching 539–540, Sets A–D, 589A–592B
Number and Operations in Base Ten 4.NBT	
Generalize place value understanding for multi-digit whole numbers.	
MGSE4.NBT.1 Recognize that in a multi-digit whole number, a digit in any one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*	**SE:** 4, 9–12, 21–24, Reteaching 27, Set B **TE:** 4–4C, 9A–12B, 21A–24B, Reteaching 27, Set B
MGSE4.NBT.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**SE:** 3, 4, 5–8, 13–16, 21–24, Reteaching 27, Sets A, C, 35–36 **TE:** 3–3A, 4–4C, 5A–8B, 13A–16B, 21A–24B, Reteaching 27, Sets A, C, 35–36A
MGSE4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.	**SE:** 4, 17–20, 21–24, Reteaching 28, Sets D, E **TE:** 4–4C, 17A–20B, 21A–24B, Reteaching 28, Sets D, E
Use place value understanding and properties of operations to perform multi-digit arithmetic.	
MGSE4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.	**SE:** 35–36, 37–40, 41–44, 45–48, 49–52, 53–56, 57–60, 61–64, 65–68, Reteaching 71–72, Sets A–E, 80, 233–236, 237–240, 241–244, 521–524, 565–568 **TE:** 35–36A, 37A–40B, 41A–44B, 45A–48B, 49A–52B, 53A–56B, 57A–60B, 61A–64B, 65A–68B, Reteaching 71–72, Sets A–E, 80–80C, 233A–236B, 237A–240B, 241A–244B, 521A–524B, 565A–568B

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MGSE4.NBT.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models**.**	**SE:** 79, 80, 81–84, 89–92, 93–96, 97–100, 101–104, 105–108, 109–112, Reteaching 115–118, Sets A–G, 127–128, 129–132, 133–136, 137–140, 141–144, 145–148, 149–152, 153–156, 1 Reteaching 59–160, Sets A–F, 168, 173–176, 177–180, 223–224, 225–228, 229–232, 233–236, 237–240, 241–244, 245–248, Reteaching 251–252, Sets A, B, D, 261–264, 265–268, 269–272, 273–276, 277–280, Reteaching 283–284, Sets A–E, 301–304, 313–316, 525–528 **TE:** 79–79A, 80–80C, 81A–84B, 89A–92B, 93A–96B, 97A–100B, 101A–104B, 105A–108B, 109A–112B, Reteaching 115–118, Sets A–G, 127–128A, 129A–132B, 133A–136B, 137A–140B, 141A–144B, 145A–148B, 149A–152B, 153A–156B, Reteaching 159–160, Sets A–F, 168–168C, 173A–176B, 177A–180B, 223–224A, 225A–228B, 229A–232B, 233A–236B, 237A–240B, 241A–244B, 245A–248B, Reteaching 251–252, Sets A, B, D, 261A–264B, 265A–268B, 269A–272B, 273A–276B, 277A–280B, Reteaching 283–284, Sets A–E, 301A–304B, 313A–316B, 525A–528B
MGSE4.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**SE:** 167, 168, 169–172, 173–176, 177–180, 181–184, 185–188, 189–192, 193–196, 197–200, 201–204, 205–208, Reteaching 211–214, Sets A, C, H, 229–232, 233–236, 237–240, 241–244, 245–248, Reteaching 251–252, Sets A, B, D, 260, 305–308, 525–528, 529–532 **TE:** 167–167A, 168–168C, 169A–172B, 173A–176B, 177A–180B, 181A–184B, 185A–188B, 189A–192B, 193A–196B, 197A–200B, 201A–204B, 205A–208B, Reteaching 211–214, Sets A, C, H, 229A–232B, 233A–236B, 237A–240B, 241A–244B, 245A–248B, Reteaching 251–252, Sets A, B, D260–260C, 305A–308B, 525A–528B, 529A–532B

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Number and Operations – Fractions 4.NF	
Extend understanding of fraction equivalence and ordering.	
MGSE4.NF.1 Explain why two or more fractions are equivalent $a/b = n \times a \quad n \times b$ **e** x: 1/4 = 3 × 1 3 × 4 by using visual fraction models. Focus attention on how the number and size of the parts differ even though the fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	**SE:** 259, 291–292, 293–296, 297–300, 301–304, 305–308, 313–316, 317–320, Reteaching 323–324, Sets A, B, 421–424, 553–556 **TE:** 259–259A, 291–292A, 293A–296B, 297A–300B, 301A–304B, 305A–308B, 313A–316B, 317A–320B, Reteaching 323–324, Sets A, B, 421A–424B, 553A–556B
MGSE4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by using visual fraction models, by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions.	**SE:** 259, 309–312, 313–316, 317–320, Reteaching 324, Sets C, D, 332, 415, 416, 421–424 **TE:** 259–259A, 309A–312B, 313A–316B, 317A–320B, Reteaching 324, Sets C, D, 332–332A, 415–415A, 416–416C, 421A–424B
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	
MGSE4.NF.3 Understand a fraction a/b with a numerator >1 as a sum of unit fractions 1/b.	**SE:** 331, 332, 333–336, 337–340, 341–344, 345–348, 349–352, 353–356, 357–360, 361–364, 365–368, 369–372, Reteaching 375-376, Sets A-F, 397–400, 401–404, Reteaching 407, Set C, 416, 417–420, 421–424, 425–428, 429–432, Reteaching 435–436, Sets A–D, 481–484, 485–488, 489–492, 553–556, 569–572 **TE:** 331–331A, 332–332C, 333A–336B, 337A–340B, 341A–344B, 345A–348B, 349A–352B, 353A–356B, 357A–360B, 361A–364B, 365A–368B, 369A–372B, Reteaching 375-376, Sets A-F, 397A–400B, 401A–404B, Reteaching 407, Set C, 416–416C, 417A–420B, 421A–424B, 425A–428B, 429A–432B, Reteaching 435–436, Sets A–D, 481A–484B, 485A–488B, 489A–492B, 553A–556B, 569A–572B

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a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	**SE:** 331, 332, 333–336, 341–344, 345–348, 349–352, 353–356, 369–372, Reteaching 375–376, Sets A, C, D **TE:** 331–331A, 332–332C, 333A–336B, 341A–344B, 345A–348B, 349A–352B, 353A–356B, 369A–372B, Reteaching 375–376, Sets A, C, D
b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*	**SE:** 332, 337–340, Reteaching 375, Sets A, B, 416, 553–556 **TE:** 332–332A, 337A–340B, Reteaching 375, Sets A, B, 416–416C, 553A–556B
c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	**SE:** 331, 332, 357–360, 361–364, 365–368, 369–372, Reteaching 376, Set E, Reteaching 407, Set C, 429–432, 569–572 **TE:** 331–331A, 332–332C, 357A–360B, 361A–364B, 365A–368B, 369A–372B, Reteaching 376, Set E, Reteaching 407, Set C, 429A–432B, 569A–572B
d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	**SE:** 331, 332, 333–336, 341–344, 345–348, 349–352, 353–356, 357–360, 361–364, 365–368, 369–372, Reteaching 376, Set F, 397–400, 401–404, 417–420, 421–424, 425–428, 429–432, Reteaching 435–436, Sets A–D, 481–484, 485–488, 489–492 **TE:** 331–331A, 332–332C, 333A–336B, 341A–344B, 345A–348B, 349A–352B, 353A–356B, 357A–360B, 361A–364B, 365A–368B, 369A–372B, Reteaching 376, Set F, 397A–400B, 401A–404B, 417A–420B, 421A–424B, 425A–428B, 429A–432B, Reteaching 435–436, Sets A–D, 481A–484B, 485A–488B, 489A–492B

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MGSE4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number e.g., by using a visual such as a number line or area model.	**SE:** 383–384, 385–388, 389–392, 393–396, 397–400, 401–404, Reteaching 407–408, Sets A-C, E, 481–484, 485–488, 489–492, 501–504, 505–508 **TE:** 383–384A, 385A–388B, 389A–392B, 393A–396B, 397A–400B, 401A–404B, Reteaching 407–408, Sets A-C, E, 481A–484B, 485A–488B, 489A–492B, 501A–504B, 505A–508B
a. Understand a fraction *a*/*b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).*	**SE:** 383–384, 385–388, 389–392, 393–396, Reteaching 407, Sets A, B **TE:** 383–384A, 385A–388B, 389A–392B, 393A–396B, Reteaching 407, Sets A, B
b. Understand a multiple of *a*/*b* as a multiple of 1/*b*, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*	**SE:** 389–392, 393–396, Reteaching 407, Sets B, C **TE:** 389A–392B, 393A–396B, Reteaching 407, Sets B, C
c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	**SE:** 383–384, 389–392, 393–396, 397–400, 401–404, Reteaching 407–408, Sets C, E, 481–484, 485–488, 489–492, 501–504, 505–508 **TE:** 383–384A,m389A–392B, 393A–396B, 397A–400B, 401A–404B, Reteaching 407–408, Sets C, E, 481A–484B, 485A–488B, 489A–492B, 501A–504B, 505A–508B
Understand decimal notation for fractions, and compare decimal fractions.	
MGSE4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*	**SE:** 443–444, 457–460, Reteaching 472, Set D **TE:** 443–444A, 457A–460B, Reteaching 472, Set D

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MGSE4.NF.6 Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*	**SE:** 443–444, 445–448, 449–452, Reteaching 471, Sets A, B **TE:** 443–444A, 445A–448B, 449A–452B, Reteaching 471, Sets A, B
MGSE4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	**SE:** 443–444, 453–456, 465–468, Reteaching 471, Set C, 493–496 **TE:**443–444A, 453A–456B, 465A–468B, Reteaching 471, Set C, 493A–496B
Measurement and Data 4.MD	
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	
MGSE4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec.	**SE:** 397–400, 479, 480, 481–484, 485–488, 489–492, 493–496, 497–500, Reteaching 511, Sets A, B **TE:** 397A–400B, 479–479A, 480-480C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, Reteaching 511, Sets A, B
a. Understand the relationship between gallons, cups, quarts, and pints.	**SE:** 485–488, Reteaching 511, Sets A, B **TE:** 485A–488B, Reteaching 511, Sets A, B
b. Express larger units in terms of smaller units within the same measurement system.	**SE:** 479, 485–488, 497–500, Reteaching 511, Sets A, B **TE:** 479-479A, 485A–488B, 497A–500B, Reteaching 511, Sets A, B
c. Record measurement equivalents in a two column table.	**SE:** 481-484, 485–488, 493-496, 497-500 **TE:** 481A-484B, 485A–488B, 493A-496B, 497A-500B

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MGSE4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	**SE:** 383–384, 397–400, 401–404, Reteaching 408, Set D, 449–452, 453–456, 461–464, 465–468, Reteaching 472, Set E, 480, 481–484, 485–488, 489–492, 493–496, 497–500, 501–504, 505–508, Reteaching 511, Set A **TE:** 383–384A, 397A–400B, 401A–404B, Reteaching 408, Set D, 449A–452B, 453A–456B, 461A–464B, 465A–468B, Reteaching 472, Set E, 480–480C, 481A–484B, 485A–488B, 489A–492B, 493A–496B, 497A–500B, 501A–504B, 505A–508B, Reteaching 511, Set A
MGSE4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.	**SE:** 153–156, 168, 479, 501–504, 505–508, 512, Reteaching Sets C, D605–608 **TE:** 153A–156B, 168–168C, 479–479A, 501A–504B, 505A–508B, 512, Reteaching Sets C, D605A–608B
Represent and interpret data.	
MGSE4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.	**SE:** 415, 416, 417–420, 421–424, 425–428, 429–432, Reteaching 435–436, Sets A–D **TE:** 415–415A, 416–416C, 417A–420B, 421A–424B, 425A–428B, 429A–432B, Reteaching 435–436, Sets A–D
Geometric Measurement: understand concepts of angle and measure angles.	
MGSE4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	**SE:** 547, 549–552, 553–556, 557–560, 561–564, 569–572, Reteaching 575-576, Sets B, D, 589–592 **TE:** 547–547A, 549A–552B, 553A–556B, 557A–560B, 561A–564B, 569A–572B, Reteaching 575-576, Sets B, D, 589A–592B

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a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.	**SE:** 547, 549–552, 553–556, 557–560, 569–572, Reteaching 575, Set B, 589-592 **TE:** 547–547A, 549A–552B, 553A–556B, 557A–560B, 569A–572B, Reteaching 575, Set B, 589A-592B
b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	**SE:** 547, 557–560, 561–564, 569–572, Reteaching 576, Set D, 589–592 **TE:** 547–547A, 557A–560B, 561A–564B, 569A–572B, Reteaching 576, Set D, 589A–592B
MGSE4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	**SE:** 547, 548, 561–564, 569–572, Reteaching 576, Sets D, F **TE:** 547–547A, 548–548C, 561A–564B, 569A–572B, Reteaching 576, Sets D, F
MGSE4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol or letter for the unknown angle measure.	**SE:** 565–568, 569–572, Reteaching 576, Set E **TE:** 565A–568B, 569A–572B, Reteaching 576, Set E
MGSE4.MD.8 Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	**SE:** 93-96, 97-100, 145-148, 501-504, 505-508 **TE:** 93A-96B, 97A-100B, 145A-148B, 501A-504B, 505A-508B

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Geometry 4.G	
Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	
MGSE4.G.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	**SE:** 547, 548, 549–552, Reteaching 575, Set A, 583–584, 585–588, 589–592, 593–596, 605–608, Reteaching 611, Set A **TE:** 547–547A, 548–548C, 549A–552B, Reteaching 575, Set A, 583–584A, 585A–588B, 589A–592B, 593A–596B, 605A–608B, Reteaching 611, Set A
MGSE4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	**SE:** 583–584, 589–592, 593–596, 605–608, Reteaching 611–612, Sets B, C, F **TE:** 583–584A, 589A–592B, 593A–596B, 605A–608B, Reteaching 611–612, Sets B, C, F
MGSE4.G.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	**SE:** 583–584, 597–600, 601–604, Reteaching 612, Sets D, E **TE:** 583–584A, 597A–600B, 601A–604B, Reteaching 612, Sets D, E