Sequenced Units for the Common Core State Standards in Mathematics
Grade 5

In previous grades, students learned various strategies for multiplication and division and demonstrated fluency in addition and subtraction. They developed understanding of structure of the place value system, and applied understanding of operations with whole numbers to begin developing computational strategies with fractions, paying special attention to unit fractions as the building blocks of all fractions. Students gained understanding that geometric figures can be analyzed and classified based on their properties.

The Grade 5 year, as sequenced here, begins with developing conceptual understanding of volume as an attribute of solid figures. This is a new concept for Grade 5 and provides an engaging context that supports problem solving throughout the year. Students practice and refine their multiplication and division strategies, attaining fluency in multiplication with whole numbers by the end of the year. The domain of Number and Operations in Base Ten is finalized this year as students generalize their understanding of the base-ten system to include decimals.

This document reflects our current thinking related to the intent of the Common Core State Standards for Mathematics (CCSSM) and assumes 160 days for instruction, divided among 15 units. The number of days suggested for each unit assumes 45-minute class periods and is included to convey how instructional time should be balanced across the year. The units are sequenced in a way that we believe best develops and connects the mathematical content described in the CCSSM; however, the order of the standards included in any unit does not imply a sequence of content within that unit. Some standards may be revisited several times during the course; others may be only partially addressed in different units, depending on the focus of the unit. Strikethroughs in the text of the standards are used in some cases in an attempt to convey that focus, and comments are included throughout the document to clarify and provide additional background for each unit.

Throughout Grade 5, students should continue to develop proficiency with the Common Core's eight Standards for Mathematical Practice:

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

These practices should become the natural way in which students come to understand and do mathematics. While, depending on the content to be understood or on the problem to be solved, any practice might be brought to bear, some practices may prove more useful than others. Opportunities for highlighting certain practices are indicated in different units in this document, but this highlighting should not be interpreted to mean that other practices should be neglected in those units.

When using this document to help in planning your district's instructional program, you will also need to refer to the CCSSM document, relevant progressions documents for the CCSSM, and the appropriate assessment consortium framework.

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Unit 1: Understanding volume	Suggested number of days: 10
Students expand their understanding of geometric measurement and spatial structuring to include volume as an attribute of three-dimensional space. In this unit, students develop this understanding using concrete models to discover strategies for finding volume, whereas in unit 9 students generalize this understanding in real-world problems and apply strategies and formulas. Volume is addressed in two units (unit 1 and unit 9) because it is a major emphasis in Grade 5.[1] The connection to multiplication and addition provides an opportunity for students to start the year off by applying the multiplication and addition strategies they learned in previous grades in a new, interesting context.[2]	
Common Core State Standards for Mathematical Content **Measurement and Data — 5.MD** C. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. 3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. 4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. **Common Core State Standards for Mathematical Practice** 3. Construct viable arguments and critique the reasoning of others. 7. Look for and make use of structure.	**Comments** Students decompose and recompose geometric figures to make sense of the spatial structure of volume (**MP.7**). In particular, students explain their thinking and analyze others' reasoning as they practice partitioning figures into layers and each layer into rows and each row into cubes (**MP.3**).

[1] For additional information on the emphasis of volume in Grade 5, see page 26 in the Geometric Measurement progressions document.
[2] For additional information, see page 25 in the PARCC Model Content Frameworks and page 5 in the Geometric Measurement progressions document.

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Unit 2: Developing multiplication and division strategies	Suggested number of days: 12
In this unit students build on their work from previous grade levels to refine their strategies for multiplication and division in order to reach fluency in multiplication by the end of the year. Students continue to develop more sophisticated strategies for division to become flexible and efficient with the standard algorithm in Grade 6. Students begin to find quotients with two-digit divisors early in the year to build strategies for accurate computations.	
Common Core State Standards for Mathematical Content **Number and Operations in Base Ten — 5.NBT** B. Perform operations with multi-digit whole numbers and with decimals to hundredths. 5. ~~Fluently~~ multiply multi-digit whole numbers using the standard algorithm. 6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Common Core State Standards for Mathematical Practice** 1. Make sense of problem and persevere in solving them. 8. Look for and express regularity in repeated reasoning.	**Comments** In this unit **5.NBT.B.5** and **5.NBT.B.6** will focus on operations with whole numbers only. Operations with decimals will be introduced in unit 10. These standards will be finalized in unit 15, but should be practiced throughout the year to provide opportunities for students to develop proficiency with these operations. Students look for regularity in their work with multiplication and division use their understanding of the structure (**MP.8**) to make sense of their solutions and understand the approaches of other students (**MP.1**).

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Unit 3: Using equivalency to add and subtract fractions with unlike denominators	Suggested number of days: 12

In this unit students use what they've learned in Grades 3 and 4 about equivalency in terms of visual models and benchmarks to extend understanding of adding and subtracting fractions, including mixed numbers. They reason about size of fractions to make sense of their answers—e.g. they understand that the sum of 1/2 and 2/3 will be greater than 1.

It is important to note that in some cases it may not be necessary to find least common denominator to add fractions with unlike denominators. Students should be encouraged to use their conceptual understanding of fractions rather than just using the algorithm for adding fractions. In addition, there is no mathematical reason for students to write fractions in simplest form.[3]

Common Core State Standards for Mathematical Content	Comments
Number and Operations—Fractions — 5.NF A. 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.*	In this unit, **5.NF.A.1** involves students using the same method from Grade 4 to generate equivalent fractions (**4.NF.A.1**). In unit 7 students will extend this understanding of equivalency to understand that multiplying by a fraction equivalent to 1 (e.g. 4/4) will result in an equivalent fraction (**5.NF.B.5b**).[4] Students use visual models and equations to solve problems involving the addition and subtraction of fractions, moving flexibly between the abstract and concrete representations (**MP.2**, **MP.4**).
Common Core State Standards for Mathematical Practice 2. Reason abstractly and quantitatively. 4. Model with mathematics.	

[3] For more information about equivalent fractions, see page 5 in the Fractions progressions document.
[4] For more information about this development of understanding, see pages 10 and 13 in the Fractions progressions document.

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Unit 4: Expanding understanding of place value to decimals	Suggested number of days: 10
In this unit students expand their previous understanding of place value to include decimal numbers. Grade 5 is the last grade in which the NBT domain appears in CCSSM. Later work in the base-ten system relies on the meanings and properties of operations. This also contributes to deepening students' understanding of computation and algorithms in the new domains that start in Grade 6.[5]	
Common Core State Standards for Mathematical Content **Number and Operations in Base Ten — 5.NBT** A. Understand the place value system. 1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. 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. a. 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 × (1/10) + 9 × (1/100) + 2 × (1/1000). **Common Core State Standards for Mathematical Practice** 6. Attend to precision. 7. Look for and make use of structure.	**Comments** Powers of 10 is a fundamental aspect of the base-ten system, thus **5.NBT.A.2** can help students extend their understanding of place value to incorporate decimals to hundredths.[6] [**5.NBT.A.3a**] Students will be reading and writing decimals in this unit. Comparing decimals (**5.NBT.A.3b**) will be addressed in unit 6. Students use their understanding of structure of whole numbers to generalize this understanding to decimals (**MP.7**) and explain the relationship between the numerals (**MP.6**).

[5] For additional information on students' work with the base-ten system, see page 2 in the Number and Operations in Base Ten progressions document.
[6] For additional information, see page 16 of the Number and Operations in Base Ten progressions document.

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Unit 5: Understanding the concept of multiplying fractions by fractions	Suggested number of days: 12
In this unit students extend their understanding of multiplying a fraction by a whole number to multiplying fractions by fractions. In previous grades, students have developed understanding of fractions as numbers. In this grade level, students develop an understanding of the connection between fractions and division. They will use this understanding to explore the relationship of multiplication and division when multiplying fractions as explained in **5.NF.B.4a**.[7]	
Common Core State Standards for Mathematical Content **Number and Operations—Fractions — 5.NF** B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions. 3. 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 to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?* 4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)* b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. **Common Core State Standards for Mathematical Practice** 1. Make sense of problems and persevere in solving them. 4. Model with mathematics. 5. Use appropriate tools strategically.	**Comments** Representing multiplication of fractions with visual and concrete models is fundamental to this unit in order for students to make sense of multiplying fractions by fractions (**MP.1**, **MP.4**). Students select and use a variety tools to explore these concepts (**MP.5**).

[7] For additional information, see page 11 of the Fractions progressions document.

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Unit 6: Comparing and rounding decimals	Suggested number of days: 10
In this unit students apply both their understanding of comparing fractions and their understanding of place value to compare decimals.[8]	
Common Core State Standards for Mathematical Content **Number and Operations in Base Ten — 5.NBT** A. Understand the place value system. 3. Read, write, and compare decimals to thousandths. b. 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. **Common Core State Standards for Mathematical Practice** 6. Attend to precision. 7. Look for and make use of structure.	**Comments** Students apply their understanding of the structure within the base-ten system and fraction-decimal equivalencies to precisely communicate their understanding of relative sizes of decimal numbers (**MP.6**, **MP.7**).

[8] For additional information on students' work with decimals, see pages 12 and 17 in the Number and Operations in Base Ten progressions document.

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Unit 7: Interpreting multiplying fractions as scaling	Suggested number of days: 12
In this unit students build on their work with "compare" problems in Grade 4 (**4.OA.A.1**) to develop a foundational understanding of multiplication as scaling. They interpret, represent, and explain situations involving multiplication of fractions. Students apply their whole number work with multiplication to develop conceptual understanding of multiplying a fraction by a fraction. Scaling is foundational for developing an understanding of ratios and proportion in future grade levels.	
Common Core State Standards for Mathematical Content **Number and Operations—Fractions — 5.NF** B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions. 5. Interpret multiplication as scaling (resizing), by: a. 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. b. 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×a)/(n×b) to the effect of multiplying a/b by 1. 6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. **Common Core State Standards for Mathematical Practice** 2. Reason abstractly and quantitatively. 4. Model with mathematics. 6. Attend to precision.	**Comments** In this unit, **5.NF.B.5a** and **5.NF.B.5b** involve only multiplication by fractions. Division by unit fractions will be introduced in unit 8. In **5.NF.B.6** students should have opportunities to work with all problem types.[9] Students reason abstractly and practice communicating their thinking in real world situations (**MP.2, MP.6**). They use number lines and other visual models to interpret situations involving multiplication by numbers larger than one (when the result will be larger than the original quantity) and involving multiplication by a fraction smaller than 1 (when the result will be smaller than the original quantity) (**MP.4**).[10]

[9] For additional information, see Table 2 in the Common Core State Standards for Mathematics and pages 9 and 23 in the Operations and Algebraic Thinking progressions document.
[10] For more information about multiplication of fractions as scaling, see page 13 in the Fractions progressions document.

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Unit 8: Developing the concept of dividing unit fractions	Suggested number of days: 10
In this unit students will use their understanding of the relationship of multiplication and division to develop a conceptual understanding of division with fractions (division of a whole number by a unit fraction or a unit fraction by a whole number).[11]	
Common Core State Standards for Mathematical Content **Number and Operations—Fractions — 5.NF** B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions. 7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. [1] a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.* b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.* NOTE: [1] 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. **Common Core State Standards for Mathematical Practice** 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively.	**Comments** In this unit it is critical for students to use concrete objects or pictures to help conceptualize, create, and solve problems (**MP.1**, **MP.2**).

[11] For more information, see page 12 in the Fractions progressions document.

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Unit 9: Solving problems involving volume	Suggested number of days: 10
This unit calls for students to apply their understanding of volume to real-world problems. They develop efficient strategies, including the use of formulas, to compute volumes of right rectangular prisms or other three-dimensional figures that can be broken down into non-overlapping right rectangular prisms.	
Common Core State Standards for Mathematical Content **Measurement and Data — 5.MD** C. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. 5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. b. Apply the formulas V=l×w×h and V=b×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. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems. **Common Core State Standards for Mathematical Practice** 5. Use appropriate tools strategically. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.	**Comments** Students pack the figures with unit cubes (**MP.5**) and connect this structure to multiplicative reasoning (**MP.7**). They solve problems by applying the generalized formulas (**MP.8**).[12]

[12] For more information, see page 27 of the Geometric Measurement progressions document.

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Unit 10: Performing operations with decimals	Suggested number of days: 12
Measurement is used in this unit as a context for operations with decimals. Students' previous experiences with decimal fractions and fraction computations are applied here to provide multiple ways of thinking about operations with decimals. Students can use their understanding of decimal-fraction equivalencies, concrete or visual models, and place value to reason about decimal quantities and operations.	
Common Core State Standards for Mathematical Content **Number and Operations in Base Ten — 5.NBT** B. Perform operations with multi-digit whole numbers and with decimals to hundredths. 7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. **Measurement and Data — 5.MD** A. 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. **Common Core State Standards for Mathematical Practice** 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others.	**Comments** **5.MD.A.1** provides measurement conversion as a context for not only working with decimals but a deeper understanding for place value and the connection to the metric system.[13] Instead of just computing answers, students reason about both the relationship between fraction and decimal operations and the relationship between whole number computation and fractional/decimal computation (**MP.2**, **MP.3**).

[13] For more information about the connection between place value and measurement conversions, see page 23 in the PARCC Model Content Frameworks and page 26 in the Geometric Measurement progressions document.

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Unit 11: Classifying two-dimensional geometric figures	Suggested number of days: 10
In this unit the emphasis is on the hierarchical relationship among 2-dimensional geometric figures. Students have had previous experience classifying shapes using defining attributes, and this unit extends this concept to set a foundation for understanding the propagation of properties.[14]	
Common Core State Standards for Mathematical Content **Geometry — 5.G** B. Classify two-dimensional figures into categories based on their properties. 3. Understand that attributes belonging to a category of two- dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.* 4. Classify two-dimensional figures in a hierarchy based on properties. **Common Core State Standards for Mathematical Practice** 3. Construct viable arguments and critique the reasoning of others. 7. Look for and make use of structure.	**Comments** Students make use of structure to build a logical progression of statements and explore hierarchical relationships among 2-dimensional shapes (**MP.3**, **MP.7**).

[14] For additional information on these hierarchical relationships, see page 17 of the Geometry progressions document.

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Unit 12: Solving problems with fractional quantities	Suggested number of days: 12
In this unit students use data and other contexts to solve real world problems involving fractional computations. All of the different problem types in Tables 1 and 2 in the Common Core State Standards for Mathematics should be addressed in this unit.[15]	
Common Core State Standards for Mathematical Content **Number and Operations—Fractions — 5.NF** B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions. 7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. [1] c. 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 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?* NOTE: [1] 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. **Measurement and Data — 5.MD** B. 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.* **Common Core State Standards for Mathematical Practice** 2. Reason abstractly and quantitatively. 5. Use appropriate tools strategically.	**Comments** **5.MD.B.2** is included here so measurement line plots can be used as a context for students to apply fraction computation strategies. Students use line plots and other tools/technology to reason about problem situations (**MP.5**). Students attend to the underlying meaning of the quantities and operations when solving problems rather than just how to compute answers (**MP.2**).[16]

[15] Find these tables on pages 88 and 89 in the Common Core State Standards for Mathematics.
[16] For additional information, see page 12 of the Fractions progressions document.

Unit 13: Representing algebraic thinking	Suggested number of days: 8
In this unit students explore algebraic expressions more formally to represent and interpret calculations involving whole numbers, fractions, and decimals. They apply their understanding of the different algebraic properties of operations and explain the relationships between the quantities with the written expressions. This unit includes opportunities to both evaluate expressions and reason about expressions without calculating a solution.[17] This is foundational for further work with number in later grades.	
Common Core State Standards for Mathematical Content **Operations and Algebraic Thinking — 5.OA** A. 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 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.* **Common Core State Standards for Mathematical Practice** 6. Attend to precision.	**Comments** The expressions described in **5.OA.A.1** include the use of parentheses but should not contain nested grouping symbols. The expressions described in **5.OA.A.2** should be no more complex than the expressions one finds in an application of the associative or distributive property. Students discuss the meaning of symbols and interpret numerical expressions precisely (**MP.6**).

[17] For more information about these standards, see pages 32 and 34 in the Operations and Algebraic Thinking progressions document.

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Unit 14: Exploring the coordinate plane	Suggested number of days: 10
In this unit students are introduced to the coordinate plane, applying their knowledge of the number line to understand the relationship of the two dimensions of a point in the coordinate plane. Students connect their work with numerical patterns to form ordered pairs and graph these ordered pairs in the first quadrant of a coordinate plane. Students use this model to make sense of and explain the relationships within the numerical patterns they generate. This prepares students for future work with functions and proportional relationships in the middle grades.[18]	
Common Core State Standards for Mathematical Content **Operations and Algebraic Thinking — 5.OA** B. Analyze patterns and relationships. 3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so*. **Geometry — 5.G** A. 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 its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). 2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. **Common Core State Standards for Mathematical Practice** 4. Model with mathematics. 6. Attend to precision.	**Comments** Students precisely describe the coordinates of points and the relationship of the coordinate plane to the number line (**MP.6**). Students both generate and identify relationships in numerical patterns, using the coordinate plane as a way of representing these relationships and patterns (**MP.4**).

[18] For more information, see pages 16-17 in the Geometry progressions document.

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Unit 15: Finalizing multiplication and division with whole numbers	Suggested number of days: 10
These standards were introduced in unit 2 to provide opportunities throughout the year for students to work towards fluency. In this unit students demonstrate fluency in multiplication with whole numbers and continue to practice division with whole numbers using various strategies.	
Common Core State Standards for Mathematical Content **Number and Operations in Base Ten — 5.NBT** B. Perform operations with multi-digit whole numbers and with decimals to hundredths. 5. Fluently multiply multi-digit whole numbers using the standard algorithm. 6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Common Core State Standards for Mathematical Practice** 1. Make sense of problems and persevere in solving them. 8. Look for and express regularity in repeated reasoning.	**Comments** **5.NBT.B.6** is a milestone along the way to reaching fluency with the standard algorithm in Grade 6 (**6.NS.B.2**). Students use efficient strategies and look for shortcuts to multiply and divide whole numbers with accuracy (**MP.1**, **MP.8**).