***Murray County Schools***



***5th Grade Math Pacing Guide***

***2018-2019***

* Thoughtful and effective ***planning*** throughout the school year is crucial for student mastery of standards.
* Once a standard is introduced, it is understood that the standard is continuously taught and/or reviewed throughout the entire

school year.

* Some standards appear in multiple grading periods. The bulleted section typed below the standard is the portion of the standard that students should master in that time frame.

**Standards for Mathematical Practice**

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

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| **First Eight Weeks** | **Second Eight Weeks** | **Third Eight Weeks** | **Fourth Eight Weeks** |
| **Operations and Algebraic Thinking****5.OA.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.**Number and Operations in Base Ten****5.NBT.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.**5.NBT.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.**5.NBT.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).
* b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results

**5.NBT.4**: Use place value understanding to round decimals to any place.***Perform operations with multi-digit whole numbers and with decimals to hundredths.*****5.NBT.5** : Fluently multiply multi-digit whole numbers using the standard algorithm.**5.NBT.6**: Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.**5.NBT.7**: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method, and explain the reasoning used.**Measurement and Data****5.MD.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 multistep, real-world problems.**Geometry****5.G.1**: Use a pair of perpendicular number lines, called axes, to define a coordinate system with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called 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).**5.G.2**: Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation. | **Operations and Algebraic Thinking****5.OA.1:** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.**5.OA.2:** Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them.**Number and Operations-Fractions****5.NF.1:** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.**5.NF.2**: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.**5.NF.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.**5.NF.4**: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. * Apply and use understanding of multiplication to multiply a fraction or whole number by a fraction. Examples 𝑎 𝑏 ×𝑞 as 𝑎 𝑏 × 𝑞 1 and 𝑎 𝑏 × 𝑐 𝑑 = 𝑎𝑐 𝑏𝑑
* 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.

**5.NF.5**: Interpret multiplication as scaling (resizing), by: .* 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. Example 4 x 10 is twice as large as 2 x 10.
* 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.

**5.NF.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.**5.NF.7**: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.**Measurement and Data****5.MD.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 multistep, real-world problems. | **Number and Operations-Fractions****5.NF.4**: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.**Measurement and Data****5.MD.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 multistep, real-world problems.**5.MD.3:** Recognize volume as an attribute of solid figures and understand concepts of volume measurement.**5.MD.4:** Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units**5.MD.5:** Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.**Geometry****5.G.3:** Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.**5.G.4:** Classify two-dimensional figures in a hierarchy based on properties. | **Numbers and Operations-Fractions****5.NF.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.**Geometry****5.G.2**: Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation.**Number and Operations-Fractions****5.NF.4**: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.* Apply and use understanding of multiplication to multiply a fraction or whole number by a fraction. Examples 𝑎 𝑏 ×𝑞 as 𝑎 𝑏 × 𝑞 1 and 𝑎 𝑏 × 𝑐 𝑑 = 𝑎𝑐 𝑏𝑑
* 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.

**5.NBT.7**: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method, and explain the reasoning used. |

Academic Vocabulary

Academic language is the specialized vocabulary associated with instruction and mastery of academic content and tasks. The words listed below reflect the minimum vocabulary necessary for students to become proficient with grade level standards.

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| **Operations and Algebraic Thinking****Number and Operations in Base Ten****Measurement and Data** | **Operations and Algebraic Thinking****Number and Operations-Fractions****Measurement and Data** | **Number and Operations-Fractions****Measurement and Data****Geometry** | **Number and Operations-Fractions****Geometry** |