Grade 5						
Key Areas of Focus for Grades 3-5: Multiplication and division of whole numbers and fractions-concepts, skills and problem solving						
Expected Fluency: Multi-digit multiplication						
Module	**M1:** Whole Number and Decimal Fraction Place Value to the One Thousandths	**M2:** Multi-Digit Whole Number and Decimal Fractions Operations	**M3**: Addition and Subtraction of Fractions	**M4:** Multiplication and Division of Fractions and Decimal Fractions	**M5:** Addition and Multiplication with Volume and Area	**M6:** Graph Points on the Coordinate Plane to Solve Problems
Duration	Quarter 1	Quarter 1	Quarter 2	Quarters 2 & 3	Quarters 3	Quarters 3 & 4
Standards	5.NBT.1 * 5.NBT.2 * 5.NBT.3 * 5.NBT.4 5.MD.1	5.OA.1 5.OA.2 5.NBT.1 * 5.NBT.2 * 5.NBT.5 * 5.NBT.6 * 5.NBT.7 *	5.NF.1 * 5.NF.2 *	5.OA.1 5.OA.2 5.NBT.7 * 5.NF.3 * 5.NF.4 * 5.NF.5 * 5.NF.6 * 5.NF.7 * 5.MD.1 5.MD.2	5.NF.4 * 5.MD.3 * 5.MD.4 * 5.MD.5 * 5.G.3 5.G.4	5.OA.2 5.OA.3
Instructional Strategies	Use the math workshop model and centers. Each module should be approached from by understanding the students' baseline first and then developing and selecting, engaging and hand-on activities to build deep understanding at developmentally appropriate levels. Where possible, provide models and visuals for students. Communicate with students using student friendly iCan statements developed and or adopted by the grade-level team. Include kinesthetic activities to deepen understanding while adding movement and play into the learning.					
Assessment Formative	Daily, ongoing formative assessment strategies included in each module (ex. Activities, exit tickets, Practice, online learning, etc.)					
Assessment Interim	A Mid-Module assessment Task is provided for each module to address the first half of the student outcomes for each module An End of the Module Assessment Task is provided to address the student outcomes for the module as a whole					

Assessment Summative	Cross-Modular Assessment Tasks are provided periodically after multiple modules to address standards from several modules and to ensure that students are making important connections across major topics within this grade.

Color Key

GEOMETRY	NUMBER	NUMBER AND GEOMETRY, MEASUREMENT	FRACTIONS

Major Clusters are denoted with *
(Areas of intense focus, where students need fluent understanding and application of core concepts)

Module 1

Essential Questions

How does a student recognize that in a multi-digit number, a digit in the ones 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?
How does a student explain patterns when multiplying and dividing by the power of 10?
How can models and illustrations be used when problem solving?

Enduring Understandings

Students continue to read, write, and compare whole numbers; using models, benchmarks (0, 1/2 and 1) and equivalent forms to judge the size of fractions; and recognize equivalent representations for the same number and generate them by decomposing and composing with numbers.
Students practice with real-world word problems, so they visualize how place value and understanding the place value system fits into their everyday lives.

I Can Statements (Adapted from www.thecurriculumcorner.com)

I Can Use Measurement & Data to Help Me Understand Math

- I can convert measurements within the same measuring system.

I Can Use Place Value and Operations to Help Me Understand Math

- I can explain patterns when multiplying a number by powers of 10.
- I can explain patterns when a decimal is multiplied or divided by a power of 10.
- I can read, write, and compare decimals to thousandths.
- I can use place value understanding to round decimals to any place.
- I can multiply multi-digit whole numbers.
- I can divide four-digit dividends by two-digit divisors.

- I can illustrate and explain a division problem using equations, arrays and/or models.
- I can add, subtract, multiply, and divide decimals to hundredths. I can use concrete models or drawings to explain the method used.

Module 1: Whole Number and Decimal Fraction Place Value to the One-Thousandths

Understand the place value system *

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 of comparisons.

5.NBT.4 Use place value understanding to round decimals to any place.

Convert like measurement units within a given measurement system.

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 multi-step, real world problems.

Module 2
Essential Questions

What is the associative property and how does it apply to mathematical equations?

What is the distributive property and how does it apply to mathematical equations?

Why does order of operations matter?

What strategies can be used to convert units?

How can place value, rounding, and estimation be used to determine the reasonableness of answers?

Enduring Understandings

Students apply the patterns of the base ten system to mental strategies and the multiplication and division algorithms building on their readiness for algebra and geometry.

I Can Statements (Adapted from www.thecurriculumcorner.com)

I Can Use Measurement & Data to Help Me Understand Math

- I can convert measurements within the same measuring system.

I Can Use Place Value and Operations to Help Me Understand Math

- I can understand and explain the value of digits.
- I can explain patterns when multiplying a number by powers of 10.
- I can explain patterns when a decimal is multiplied or divided by a power of 10.
- I can multiply multi-digit whole numbers.
- I can divide four-digit dividends by two-digit divisors.
- I can illustrate and explain a division problem using equations, arrays and/or models.
- I can add, subtract, multiply, and divide decimals to hundredths. I can use concrete models or drawings to explain the method used.

I Can Use Algebra to Help Me Understand Math

- I can use parentheses and brackets in expressions.

Module 2: Multi-Digit Whole Number and Decimal Fraction Operations

Write and interpret numerical expressions.

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. 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.

Understand the place value system. *

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.

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

Module 3
Essential Questions
How do we add and subtract fractions with unlike denominators?
How can real life problems involving addition and subtraction of fractions be solved?
What strategies can be used to determine if answers are reasonable?

Enduring Understandings
Students continue to build on their skill with equivalent fractions and practice with real-world problems.

I Can Statements (Adapted from www.thecurriculumcorner.com)

I Can Use Fractions to Help Me Understand Math

- I can add and subtract fractions with unlike denominators and mixed numbers.
- I can solve word problems that involve fractions.

Module 3: Addition and Subtraction of Fraction

Use equivalent fractions as a strategy to add and subtract 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. For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)

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. For example, recognize an incorrect result
2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.

Module 4
Essential Questions

What role do fractions in measurement?
How does accuracy of measurement affect distribution on line plots?
What is the significance of precision in measurement?
How do models help illustrate fractions and measurement data?

Enduring Understandings

Students learn to multiply fractions and decimal fractions and begin work with fraction division. Students make connections between measurement and models and the multiplication and conversion to decimals of fractions. Students begin to understand multiplication as a comparison.

I Can Statements (Adapted from www.thecurriculumcorner.com)

I Can Use Fractions to Help Me Understand Math

- I can understand that fractions are really the division of a numerator by the denominator.
- I can solve word problems where I divide whole numbers to create an answer that is a mixed number.
- I can multiply a fraction or whole number by a fraction.
- I can think of multiplication as the scaling of a number (similar to a scale on a map.)
- I can solve real world problems by multiplying fractions and mixed numbers.
- I can divide fractions by whole numbers and whole numbers by fractions.

I Can Use Measurement & Data to Help Me Understand Math

- I can convert measurements within the same measuring system.
- I can make a line plot to display data sets of measurements in fractions.
- I can use fraction operations to solve problems involving information presented on a line plot.

I Can Use Algebra to Help Me Understand Math

- I can use parentheses and brackets in expressions.
- I can write expressions I hear using mathematic symbols and the order of operations.

Module 4: Multiplication and Division of Fractions and Decimal Fractions

Write and interpret numerical expressions.

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. 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.

Perform operations with multi-digit whole numbers and with decimals to hundredths. *

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.

Apply and extend previous understandings of multiplication and division to multiply and divide fractions. *

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. 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?

5.NF.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.)

5.NF.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.

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.

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.

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?

Convert like measurement units within a given measurement system.

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 multi-step, real world problems.*

Represent and interpret data.

5.MD.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.

Module 5
Essential Questions

Why is it important to understand volume?

Enduring Understandings

Students increase their understanding of volume and use models and real-life applications of problems involving volume**.**

I Can Statements (Adapted from www.thecurriculumcorner.com)

I Can Use Fractions to Help Me Understand Math

- I can multiply a fraction or whole number by a fraction.

I Can Use Measurement & Data to Help Me Understand Math

- I can understand volume.
- I can measure volume by counting unit cubes.
- I can solve real world problems involving volume.
- I can find the volume of an object using the formulas V = l x w x h and V = b x h.

I Can Use Geometry to Help Me Understand Math

- I can classify shapes into categories.
- I can classify shapes based on properties.

Module 5: Addition and Multiplication with Volume and Area

Apply and extend previous understandings of multiplication and division to multiply and divide fractions. *

5.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

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.

Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. *

5.MD.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.

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.
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 nonoverlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.

Classify two-dimensional figures into categories based on their properties.

5.G.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.

5.G.4 Classify two-dimensional figures in a hierarchy based on properties.

Module 6
Essential Questions
How does a student plot points on a coordinate plane?
How does a student describe how to plot points and show the relationship between the axes and the coordinate points?

Enduring Understandings
Students learn to use a coordinate system to physically located coordinate points by starting at the origin point (0,0). Students will 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 connection that the names of the two axes and the coordinates correspond. Students will 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.

I Can Statements (Adapted from www.thecurriculumcorner.com)

I Can Use Geometry to Help Me Understand Math

- I can understand how to graph ordered pairs on a coordinate plane.
- I can graph and interpret points in the first quadrant of a coordinate plane.

I Can Use Algebra to Help Me Understand Math

- I can write expressions I hear using mathematic symbols and the order of operations.
- Use numerical rules and patterns to form ordered pairs. Graph the ordered pairs on a coordinate plane.

Module 6: Graph Points on the Coordinate Plane to Solve Problems

Write and interpret numerical expressions.

5.OA.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.

Analyze patterns and relationships.

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. 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.

Graph points on the coordinate plane to solve real-world and mathematical problems.

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.

Major Clusters are denoted with *
(Areas of intense focus, where students need fluent understanding and application of core concepts)

Primary Resources
1. Eureka Math Program
2. Context for Learning
3. Math Workshop Model
4. Do the Math
5. TenMarks

Essential Questions Defined:

Essential questions are broad concepts asked in question form. They help guide the teacher in teaching the unit and designing their lesson plan. We use the following five essential questions with all of our units, in all of our grades, across all of our subjects (Adapted from Rick DuFour)
1. What do students need to know and be able to do?
2. How will we teach them?
3. How will we know if they know and are able to do?
4. What will we do if they don't?
5. What will we do if they already know and are able to do prior to a lesson or unit beginning?

Enduring Understandings Defined:
Enduring understandings are statements that capture the important ideas that can be transferred to learning and doing beyond the classroom (Adapted from Grant Wiggins and Jay McTighe, Understanding by Design).