

Course Description: This curriculum has been written to align with the revised MO Learning Standards for Math (approved by the state board of education in April of 2016). Eureka Math continues to be our primary math resource, and this curriculum has been written as a guide for utilizing this resource to teach the revised MO Learning Standards for Math.

Fifth Grade Math Scope and Sequence

	Module	Timeframe
1	Place Value and Decimal Fractions	4 weeks
2	Multi-Digit Whole Number and Decimal Fraction Operations	7 weeks
3	Addition and Subtraction of Fractions	4.1 weeks
4	Multiplication and Division of Fractions and Decimal Fractions	6 weeks
5	Addition and Multiplication with Volume and Area	5 weeks
6	Problem Solving with the Coordinate Plane	8 weeks

Module 1 Place Value and Decimal Fractions
<p>Standards addressed:</p> <p>5.NBT.A.1 Read, write and identify numbers from billions to thousandths using number names, base ten numerals and expanded form.</p> <p>5.NBT.A.2 Compare two numbers from billions to thousandths using the symbols $>$, $=$ or $<$, and justify the solution.</p> <p>5.NBT.A.3 Understand that in a multi-digit number, a digit represents $1/10$ times what it would represent in the place to its left.</p> <p>5.NBT.A.4 Evaluate the value of powers of 10 and understand the relationship to the place value system.</p> <p>5.NBT.A.5 Round numbers from billions to thousandths place.</p> <p>5.NBT.A.6 Add and subtract multi-digit whole numbers and decimals to the thousandths place, and justify the solution.</p> <p>5.NF.A.3 Compare and order fractions and/or decimals to the thousandths place using the symbols $>$, $=$ or $<$, and justify the solution.</p> <p>Supporting Standards:</p> <p>4.NBT.A.1 Round multi-digit whole numbers to any place.</p> <p>4.NBT.A.4 Understand that in a multi-digit whole number, a digit represents 10 times what it would represent in the place to its right.</p> <p>4.NBT.A.5 Demonstrate fluency with addition and subtraction of whole numbers.</p>
<p>Essential Questions:</p>

What is the relationship between decimals and fractions?
 How can we read, write, and represent decimal values?
 How can rounding decimal numbers be helpful?
 How do we compare decimals?
 Why is place value important when adding/subtracting whole numbers and decimal numbers?
 What strategies can I use to add and subtract decimals?
 How does multiplying/dividing a whole number by a power of ten affect the product?
 How do the rules of multiplying/dividing whole numbers relate to multiplying/dividing decimals?

Learning Targets:

Students will understand that like whole numbers, the location of a digit in decimal numbers determines the value of the digit.
 Students will understand that rounding decimals should be reasonable for the context of the problem.
 Students will understand that decimal numbers can be represented with models.
 Students will understand that addition and subtraction with decimals are based on the fundamental concept of adding and subtracting the numbers in like position values.
 Students will understand that rules for multiplication and division of whole numbers also apply to decimals.

Content Vocabulary:

decimal, exponent, base ten numerals, powers of ten, product, expanded form, round/estimation, place value names, greater than, less than, equal to,

Standard(s)	Topic	Number of Days
5.NBT.A.3 5.NBT.A.4	Multiplicative Patterns on the Place Value Chart	4
5.NF.A.3	Decimal Fractions and Place Value Patterns	2
5.NBT.A.5	Place Value and Rounding Decimal Fractions	2
	Mid-Module Assessment	2
5.NBT.A.1 5.NBT.A.2 5.NBT.A.6	Adding and Subtracting Decimals	2
5.NBT.A.1 5.NBT.A.2 5.NBT.A.6	Multiplying Decimals	2
5.NBT.A.2 5.NBT.A.6	Dividing Decimals	4
	End of Module Assessment	2

Module 2

Multi-Digit Whole Number and Decimal Fraction Operations

Standards addressed:

- 5.NBT.A.3 Understand that in a multi-digit number, a digit represents 1/10 times what it would represent in the place to its left.
- 5.NBT.A.4 Evaluate the value of powers of 10 and understand the relationship to the place value system.
- 5.NBT.A.6 Add and subtract multi-digit whole numbers and decimals to the thousandths place, and justify the solution.
- 5.NBT.A.7 Multiply multi-digit whole numbers and decimals to the hundredths place, and justify the solution.
- 5.NBT.A.8 Divide multi-digit whole numbers and decimals to the hundredths place using up to two-digit divisors and four-digit dividends, and justify the solution.
- 5.RA.B.3 Write, evaluate and interpret numeric expressions using the order of operations.
- 5.RA.B.4 Translate written expressions into algebraic expressions.

Supporting Standards:

- 4.NBT.A.4 Understand that in a multi-digit whole number, a digit represents 10 times what it would represent in the place to its right.
- 4.NBT.A.5 Demonstrate fluency with addition and subtraction of whole numbers.
- 4.NBT.A.6 Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers, and justify the solution.
- 4.NBT.A.7 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, and justify the solution.

Essential Questions:

- How does multiplying/dividing a whole number by a power of ten affect the product?
- What strategies can we use to efficiently solve multiplication and division problems?
- How can estimating help us when solving division problems?
- Why is it important to follow the order of operations?
- How can I write an expression that demonstrates a situation or context?
- How can an expression be written given a set value?

Learning Targets:

- Students will investigate the effects of multiplying/dividing whole numbers by powers of 10.
- Students will apply strategies for multiplying a 2-, 3-, or 4-digit number by a 2-digit number.
- Students will apply strategies for dividing a 2-, 3- or 4-digit dividend by a 2-digit divisor.
- Students will solve real world problems involving multiplication and division.
- Students will understand that the dividend, divisor, quotient, and remainder are related in the following manner: $\text{dividend} = \text{divisor} \times \text{quotient} + \text{remainder}$.
- Students will solve expressions that include addition, subtraction, multiplication, and division, thus applying the order of operations.

Content Vocabulary:

algorithm, dividend, divisor, expression, order of operations, product, quotient, remainder

Standard(s)	Topic	Number of Days
5.NBT.A.3 5.NBT.A.4 5.RA.B.3	Mental Strategies for Multi-Digit Whole Number Multiplication	2
5.RA.B.3 5.RA.B.4 5.NBT.A.7	The Standard Algorithm for Multi-Digit Whole Number Multiplication	7

5.NBT.A.6 5.NBT.A.3 5.RA.B.3 5.RA.B.4	Decimal Multi-Digit Multiplication	3
5.NBT.A.3 5.NBT.A.4 5.NBT.A.6 5.NBT.A.7	Measurement Word Problems with Whole Number and Decimal Multiplication	3
	Mid Module Assessment	3
5.NBT.A.3 5.NBT.A.4 5.NBT.A.8	Mental Strategies for Multi-Digit Whole Number Division	3
5.NBT.A.8	Partial Quotients and Multi-Digit Whole Number Division	5
5.NBT.A.4 5.NBT.A.6	Partial Quotients and Multi-Digit Decimal Division	4
5.NBT.A.6 5.NBT.A.8	Measurement Word Problems with Multi-Digit Division	2
	End of Module Assessment	3

<p>Module 3 Addition and Subtraction of Fractions</p>
<p>Standards addressed: 5.NF.A.1 Understand that parts of a whole can be expressed as fractions and/or decimals. 5.NF.A.2 Convert decimals to fractions and fractions to decimals. 5.NF.B.6 Solve problems involving addition and subtraction of fractions and mixed numbers with unlike denominators, and justify the solution.</p>
<p>Supporting Standards: 4.NF.A.1 Explain and/or illustrate why two fractions are equivalent. 4.NF.A.2 Recognize and generate equivalent fractions 4.NF.B.3 Solve problems involving adding and subtracting fractions and mixed numbers with <u>like</u> denominators.</p>
<p>Essential Questions: How are equivalent fractions helpful when solving problems? How can a fraction be greater than 1? How can comparing factor size to 1 help us predict what will happen to the product? How can we tell if a fraction is greater than, less than, or equal to one whole? What strategies can we use for adding and subtracting fractions with different denominators?</p>
<p>Learning Targets: Students will apply strategies when adding/subtracting fractions with unlike denominators. Students will apply strategies when adding/subtracting mixed numbers.</p>
<p>Content Vocabulary:</p>

numerator, denominator, common denominator, equivalent, fraction, mixed number,		
Standard(s)	Topic	Number of Days
5.NF.A.2 5.NF.A.6	Equivalent Fractions	2
5.NF.A.1 5.NF.B.6	Making Like Units Pictorially	5
	Mid Module Assessment	3
5.NF.A.1 5.NF.B.6	Making Like Units Numerically	5
5.NF.A.1 5.NF.B.6	Further Applications	4
	End of Module Assessment	3

Module 4 Multiplication and Division of Fractions and Decimal Fractions	
Standards addressed:	
5.NBT.A.6 Add and subtract multi-digit whole numbers and decimals to the thousandths place, and justify the solution.	
5.NF.A.2 Convert decimals to fractions and fractions to decimals.	
5.NF.B.5 Justify the reasonableness of a product when multiplying with fractions.	
a. Estimate the size of the product based on the size of the two factors.	
b. Explain why multiplying a given number by a fraction greater than 1 results in a product larger than the given number.	
c. Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number.	
d. Explain why multiplying the numerator and denominator by the same number is equivalent to multiplying the fraction by 1.	
5.NF.B.6 Solve problems involving addition and subtraction of fractions and mixed numbers with unlike denominators, and justify the solution.	
5.NF.B.7 Extend the concept of multiplication to multiply a fraction or whole number by a fraction.	
a. Recognize the relationship between multiplying fractions and finding the areas of rectangles with fractional side lengths.	
b. Calculate and interpret the product of a fraction by a whole number and a whole number by a fraction.	
c. Calculate and interpret the product of two fractions less than one.	
5.NF.B.8 Extend the concept of division to divide unit fractions and whole numbers by using visual fraction models and equations. a. Calculate and interpret the quotient of a unit fraction by a non-zero whole number. b. Calculate and interpret the quotient of a whole number by a unit fraction.	
5.RA.C.5 Solve and justify multi-step problems involving variables, whole numbers, fractions and decimals.	
5.GM.D.8 Convert measurements of capacity, length and weight within a given measurement system.	
5.GM.D.9 Solve multi-step problems that require measurement conversions	
5.DS.A.1 Create a line graph to represent a data set, and analyze the data to answer questions and solve	

problems.

5.DS.A.2 Create a line plot to represent a given or generated data set, and analyze the data to answer questions and solve problems, recognizing the outliers and generating the median.

5.RA.B.3 Write, evaluate and interpret numeric expressions using the order of operations.

5.RA.B.4 Translate written expressions into algebraic expressions.

Supporting Standards:

4.NBT.A.5 Demonstrate fluency with addition and subtraction of whole numbers.

4.NF.B.3 Solve problems involving adding and subtracting fractions and mixed numbers with like denominators.

4.NF.B.5 Solve problems involving multiplication of a fraction by a whole number.

4.RA.C.1 Generate a number pattern that follows a given rule.

4.RA.C.2 Use words or mathematical symbols to express a rule for a given pattern.

4.GM.C.1.a Convert measurements in a larger unit in terms of a smaller unit

3.DS.A.3 Create a line plot to represent data.

3.DS.A.4 Use data shown in a line plot to answer questions.

4.DS.A.2 Analyze the data in a frequency table, line plot.

Essential Questions:

How can data sets be represented and analyzed using a line plot?

How are equivalent fractions helpful when solving problems?

How can a fraction be greater than 1?

How can a model help us make sense of a problem?

How can we tell if a fraction is greater than, less than, or equal to one whole?

What models can we use to help us add and subtract fractions with different denominators?

What strategies can we use for adding and subtracting fractions with different denominators?

What does multiplying/dividing a unit fraction by a whole number look like?

What does multiplying/dividing a whole number by a unit fraction look like?

Learning Targets:

Students will understand that a line plot can show a collection of data.

Students will understand that a fraction is another representation for division.

Students will apply strategies to multiply a whole number and a fraction.

Students will apply strategies to multiply a fraction and a fraction.

Students will apply strategies to divide a whole number and a fraction.

Students will apply strategies to divide a fraction and a whole number.

Students will understand that fractions and decimals are different representations for the same amounts and can be used interchangeably.

Content Vocabulary:

line plot, fraction, mixed number, numerator, denominator

Standard(s)	Topic	Number of Days
5.DS.A.2	Line Plots of Fraction Measurements	1
5.NF.A.2	Fractions as Division	4
5.NF.B.7 5.GM.D.8	Multiplication of a Whole Number by a Fraction	4
5.RA.B.3 5.RA.B.4 5.NF.B.6 5.NF.B.7	Fraction Expressions and Word Problems	3

	Mid Module Assessment	2
5.NBT.A.6 5.NF.B.6 5.NF.B.7 5.RA.C.5 5.GM.D.8 5.GM.D.9	Multiplication of a Fraction by a Fraction	8
5.NF.B.5 5.NF.B.6	Multiplication with Fractions and Decimals as Scaling and Word Problems	4
5.RA.B.3 5.RA.C.5 5.NF.B.8 5.NBT.A.6	Division of Fractions and Decimal Fractions	7
5.RA.B.3 5.RA.B.4	Interpretation of Numerical Expressions	2
	End of Module Assessment	2

<p>Module 5 Addition and Multiplication with Volume and Area</p>
<p>Standards addressed:</p> <p>5.GM.B.4 Understand the concept of volume and recognize that volume is measured in cubic units.</p> <ol style="list-style-type: none"> a. Describe a cube with edge length 1 unit as a “unit cube” and is said to have “one cubic unit” of volume and can be used to measure volume. b. Understand that the volume of a right rectangular <p>5.NF.B.6 Solve problems involving addition and subtraction of fractions and mixed numbers with unlike denominators, and justify the solution.</p> <p>5.NF.B.7 Extend the concept of multiplication to multiply a fraction or whole number by a fraction.</p> <ol style="list-style-type: none"> a. Recognize the relationship between multiplying fractions and finding the areas of rectangles with fractional side lengths. b. Calculate and interpret the product of a fraction by a whole number and a whole number by a fraction. <p>5.GM.A.1 Understand that attributes belonging to a category of figures also belong to all subcategories.</p> <p>5.GM.A.2 Classify figures in a hierarchy based on properties.</p> <p>5.GM.A.3 Analyze and describe the properties of prisms and pyramids.</p> <p>5.GM.B.5 Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for volume of right rectangular prisms with whole-number edge lengths.</p> <p>Supporting Standards:</p> <p>3.GM.C.4 Multiply whole number side lengths to solve problems involving the area of rectangles</p> <p>2.GM.A.1 Recognize and draw shapes having specified attributes, such as a given number of angles or sides.</p>
<p>Essential Questions:</p> <p>How is volume measured?</p> <p>Why is volume represented with cubic units and area represented with square units?</p>

How can plane figures be categorized and classified?
 What are the properties of a quadrilateral?
 How can you classify different types of quadrilaterals?
 What are the properties of prisms and pyramids?

Learning Targets:

Students will understand that volume refers to the space taken up by the object itself (the size of the three dimensional region)
 Students will understand that volume is measured and represented in cubic units.
 Students will understand the reasoning behind the formula used to find volume ($v=l \times w \times h$).
 Students will understand that shapes are defined by their attributes.
 Students will understand that there can be multiple ways to classify a polygon.
 Students will understand that 2D figures can fit into more than one category.
 Students will determine if a shape is a prism or pyramid based on its properties.

Content Vocabulary:

cubic units, volume, length, width, height, classify, attribute, quadrilateral, parallelogram, rectangle, rhombus, square, trapezoid, parallel, perpendicular, intersecting, prism, pyramid

Standard(s)	Topic	Number of Days
5.GM.B.4	Concepts of Volume	3
5.GM.B.4 5.GM.B.5	Volume and the Operations of Multiplication and Addition	6
	Mid Module Assessment	2
5.NF.B.6 5.NF.B.7	Area of Rectangular Figures with Fractional Side Lengths	6
5.GM.A.1 5.GM.A.2	Drawing, Analysis, and Classification of Two-Dimensional Shapes	6
5.GM.A.3	Analyze and describe the properties of prisms and pyramids.	2
	End of Module Assessment	2

Module 6

Problem Solving with the Coordinate Plane

Standards addressed:

- 5.GM.C.6** Define a first quadrant Cartesian coordinate system.
- Represent the axes as scaled perpendicular number lines that both intersect at 0, the origin.
 - Identify any point on the Cartesian coordinate plane by its ordered pair coordinates.
 - Define the first number in an ordered pair as the horizontal distance from the origin.
 - Define the second number in an ordered pair as the vertical distance from the origin.
- 5.GM.C.7** Plot and interpret points in the first quadrant of the Cartesian coordinate plane.
- 5.RA.A.1** Investigate the relationship between two numeric patterns.

- a. Generate two numeric patterns given two rules.
- b. Translate two numeric patterns into two sets of ordered pairs.
- c. Graph numeric patterns on the Cartesian coordinate plane.
- d. Identify the relationship between two numeric patterns.

5.RA.A.2 Write a rule to describe or explain a given numeric pattern.

5.RA.B.4 Translate written expressions into algebraic expressions.

Supporting Standards:

4.RA.C.1 Generate a number pattern that follows a given rule.

4.RA.C.2 Use words or mathematical symbols to express a rule for a given pattern

Essential Questions:

How does the coordinate system work?

What relationship can be determined by analyzing two sets of given rules?

How can we represent numerical patterns on a coordinate grid?

Learning Targets:

Students will understand that a plot point on a coordinate plane represents two values.

Students will plot and interpret points on a coordinate plane.

Students will make predictions and interpretations about real world situations that can be made by looking at graphical representations.

Content Vocabulary:

numerical pattern, rules, ordered pairs, coordinate plane, axes, origin, horizontal, vertical

Standard(s)	Topic	Number of Days
5.GM.C.6	Coordinate Systems	46
5.GM.C.6 5.RA.A.1 5.RA.A.2 5.RA.B.4	Patterns in the Coordinate Plane and Graphing Number Patterns from Rules	6
	Mid Module Assessment	3
5.GM.C.6 5.GM.C.7	Drawing Figures in the Coordinate Plane	5
5.GM.C.7 5.RA.A.1	Problem Solving in the Coordinate Plane	3
	End of Module Assessment	3