



K I R K W O O D  
S C H O O L D I S T R I C T

**THIRD GRADE MATH**

Approved by KSD Board of Education: May 19, 2025

**Course Description:**

In Grade 3, instructional time focuses on five areas: (1) expanding their understanding of base-ten numbers, addition, and subtractions; (2) developing understanding of multiplication and division and strategies for multiplication and division within 100; (3) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (4) developing understanding of the structure of rectangular arrays and of area and describing and analyzing shapes; and (5) solving problems involving measurement and data, including the use of graphs.

**Grade Level:** 3rd Grade

**Unit Scope and Sequence**

**Unit 1:** Introducing Multiplication

**Unit 2:** Area and Multiplication

**Unit 3:** Wrapping Up Addition and Subtraction Within 1,000

**Unit 4:** Relating Multiplication to Division

**Unit 5:** Fractions As Numbers

**Unit 6:** Measuring Length, Time, Liquid Volume, and Weight

**Unit 7:** Two-Dimensional Shapes and Perimeter

**Course Enduring Understandings:**

- Multiplication represents combining equal groups.
- Place value organization can help us add, subtract, multiply, and divide.

**Course Essential Questions:**

- How does multiplication represent equal groups?
- How do you know if an answer is reasonable?

# THIRD GRADE MATH

## Unit 1: Introducing Multiplication

*Students represent and solve multiplication problems through the context of equal groups, diagrams, expressions, equations, and scaled graphs*

<b>Unit Essential Learning Targets</b>	
<b><i>Enduring Understandings</i></b>	<b><i>Essential Questions</i></b>
<ul style="list-style-type: none"> <li>● Multiplication can represent combining equal groups of objects in drawings, diagrams, and arrays.</li> <li>● Graphs have features that help people interpret information.</li> </ul>	<ul style="list-style-type: none"> <li>● How does multiplication represent equal groups?</li> <li>● How are arrays related to multiplication?</li> <li>● How do different scales affect picture graphs and bar graphs?</li> </ul>
<b><i>Students must know:</i></b>	<b><i>Students must be able to:</i></b>
<ul style="list-style-type: none"> <li>● Vocabulary               <ul style="list-style-type: none"> <li>○ Commutative Property of Multiplication</li> <li>○ Factor</li> <li>○ Identity Property of Multiplication</li> <li>○ Key</li> <li>○ Multiply</li> <li>○ Product</li> <li>○ Scale</li> <li>○ Scaled Bar Graph</li> <li>○ Scaled Picture Graph</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Represent and solve multiplication problems involving equal groups.</li> <li>● Understand multiplication in terms of equal groups.</li> <li>● Represent and solve multiplication problems involving arrays.</li> <li>● Interpret scaled picture graphs and scaled bar graphs.</li> <li>● Represent data using scaled picture graphs and scaled bar graphs.</li> <li>● Choose a scale based on the data being represented.</li> <li>● Solve one- and two-step problems with contexts that use addition and subtraction.</li> <li>● Write multiplication expressions to represent diagrams and situations involving equal groups.</li> <li>● Arrange objects into arrays and describe the arrays in terms of equal groups.</li> <li>● Describe the Commutative Property of Multiplication using arrays.</li> <li>● Represent an array situation by writing an equation with a symbol for the unknown value.</li> </ul>

# THIRD GRADE MATH

## Unit 1: Introducing Multiplication

### Missouri Learning Standards

#### Priority Standards

- Interpret products of whole numbers. (3.RA.A.1)
- Describe in words or drawings a problem that illustrates a multiplication or division situation. (3.RA.A.3)
- Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of two one-digit numbers. (3.RA.C.7)
- Demonstrate fluency with products within 100. (3.RA.C.8)

#### Supporting Standards

- Use multiplication and division within 100 to solve problems. (3.RA.A.4)
- Determine the unknown number in a multiplication or division equation relating three whole numbers. (3.RA.A.5)
- Apply properties of operations as strategies to multiply and divide. (3.RA.B.6)
- Create frequency tables, scaled picture graphs and bar graphs to represent a data set with several categories. (3.DS.A.1)
- Solve one- and two-step problems using information presented in bar and/or picture graphs. (3.DS.A.2)

# THIRD GRADE MATH

## Unit 2: Area and Multiplication

Students explore area concepts and relate area to multiplication using rectangles and rectilinear shapes.

### Unit Essential Learning Targets

<b><i>Enduring Understandings</i></b>	<b><i>Essential Questions</i></b>
<ul style="list-style-type: none"><li>• Different units are used to measure objects depending on the objects' size and the precision needed.</li><li>• Common units are helpful for calculating and comparing areas.</li><li>• The amount of space inside a region is its area.</li></ul>	<ul style="list-style-type: none"><li>• How are equal groups, arrays, and area related?</li><li>• How is area related to multiplication?</li></ul>
<b><i>Students must know:</i></b>	<b><i>Students must be able to:</i></b>
<ul style="list-style-type: none"><li>• Vocabulary<ul style="list-style-type: none"><li>○ Area</li><li>○ Parentheses</li><li>○ Square Centimeter</li><li>○ Square Foot</li><li>○ Square Inch</li><li>○ Square Meter</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Describe area as the number of unit squares that cover a plane figure without gaps and overlaps.</li><li>• Measure the areas of rectangles by counting unit squares.</li><li>• Explain why the area of a rectangle can be determined by multiplying the side lengths.</li><li>• Solve problems involving the areas of rectangles.</li><li>• Determine the areas of figures composed of rectangles.</li><li>• Determine the areas of rectangles using side lengths.</li><li>• Measure the side lengths of rectangles to calculate their areas.</li><li>• Solve area problems involving unknown areas and side lengths.</li><li>• Determine the areas of figures composed of non-overlapping rectangles.</li></ul>

# THIRD GRADE MATH

## Unit 2: Area and Multiplication

### Missouri Learning Standards

#### Priority Standards

- Describe in words or drawings a problem that illustrates a multiplication or division situation. (3.RA.A.3)
- Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of two one-digit numbers. (3.RA.C.7)
- Demonstrate fluency with products within 100. (3.RA.C.8)
- Find rectangular arrangements that can be formed for a given area. (3.GM.C.13)
- Decompose a rectangle into smaller rectangles to find the area of the original rectangle. (3.GM.C.14)

#### Supporting Standards

- Calculate area by using unit squares to cover a plane figure with no gaps or overlaps. (3.GM.C.9)
- Demonstrate that tiling a rectangle to find the area and multiplying the side lengths result in the same value. (3.GM.C.11)
- Multiply whole-number side lengths to solve problems involving the area of rectangles. (3.GM.C.12)
- Use multiplication and division within 100 to solve problems. (3.RA.A.4)
- Apply properties of operations as strategies to multiply and divide. (3.RA.B.6)
- Write and solve two-step problems involving variables using any of the four operations (3.RA.D.9)

# THIRD GRADE MATH

## Unit 3: Wrapping Up Addition and Subtraction within 1000

*Students apply their understanding of place value to addition and subtraction algorithms and estimation by rounding.*

<b>Unit Essential Learning Targets</b>	
<b><i>Enduring Understandings</i></b>	<b><i>Essential Questions</i></b>
<ul style="list-style-type: none"> <li>● Addition and subtraction are inverse operations that can be used together to solve problems and check answers.</li> <li>● Estimating helps add and subtract numbers quickly when precision is not important.</li> <li>● Place value organization can help add and subtract large numbers.</li> </ul>	<ul style="list-style-type: none"> <li>● How do you use place value for addition and subtraction?</li> <li>● How do you know if an answer is reasonable?</li> </ul>
<b><i>Students must know:</i></b>	<b><i>Students must be able to:</i></b>
<ul style="list-style-type: none"> <li>● Vocabulary               <ul style="list-style-type: none"> <li>○ Algorithm</li> <li>○ Rounding</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Fluently subtract within 1,000 using algorithms based on place value, properties of operations, and the relationship between addition and subtraction.</li> <li>● Use place value understanding to compose and decompose numbers.</li> <li>● Round whole numbers to the nearest multiple of 10 and 100.</li> <li>● Assess the reasonableness of solutions.</li> <li>● Solve two-step story problems using addition, subtraction, and multiplication.</li> <li>● Represent numbers in multiple ways (ex: 999 = 9 hundreds, 9 tens, and 9 ones. 999= 8 hundreds, 19 tens, and 9 ones.)</li> <li>● Use estimation to check the reasonableness of an answer.</li> <li>● Use subtraction algorithms and consider when it is necessary to decompose units to subtract across zeros.</li> <li>● Relate expanded form algorithm to the partial sums algorithm.</li> <li>● Locate numbers on number lines to consider the distance between three-digit numbers and multiples of 100.</li> </ul>

**THIRD GRADE MATH**  
**Unit 3: Wrapping Up Addition and Subtraction within 1000**

**Missouri Learning Standards**

**Priority Standards**

- Write and solve two-step problems involving variables using any of the four operations. (3.RA.D.9)
- Interpret the reasonableness of answers using mental computation and estimation strategies including rounding. (3.RA.D.10)
- Identify arithmetic patterns and explain the patterns using properties of operations. (3.RA.E.11)

**Supporting Standards**

- Round whole numbers to the nearest 10 or 100. (3.NBT.A.1)
- Demonstrate fluency with addition and subtraction within 1000. (3.NBT.A.3)

# THIRD GRADE MATH

## Unit 4: Relating Multiplication to Division

Students explore the relationship between multiplication and division to multiply and divide whole numbers within 100.

<b>Unit Essential Learning Targets</b>	
<b><i>Enduring Understandings</i></b>	<b><i>Essential Questions</i></b>
<ul style="list-style-type: none"><li>• Understand two ways to interpret division: partitive and quotitive.</li><li>• Multiplication and division are inverse operations and can be used together to solve problems and check answers.</li></ul>	<ul style="list-style-type: none"><li>• How do we use equal groups to divide?</li><li>• How is division related to multiplication?</li><li>• How can we use strategies to multiply and divide greater numbers?</li></ul>
<b><i>Students must know:</i></b>	<b><i>Students must be able to:</i></b>
<ul style="list-style-type: none"><li>• Vocabulary<ul style="list-style-type: none"><li>○ Associative Property of Multiplication</li><li>○ Distributive Property</li><li>○ Dividend</li><li>○ Divisor</li><li>○ Divide</li><li>○ Quotient</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Represent and solve “how many groups?” and “how many in each group?” problems.</li><li>• Understand division as an unknown factor problem.</li><li>• Use properties of operations to develop fluency with one-digit multiplication facts and their related division facts.</li><li>• Use properties of operations and place value understanding to develop strategies to multiply within 100 and to multiply one-digit numbers by multiples of 10.</li><li>• Use properties of operations, place value understanding, and the relationship between multiplication and division to divide within 100.</li></ul>

# THIRD GRADE MATH

## Unit 4: Relating Multiplication to Division

### Missouri Learning Standards

#### Priority Standards

- Interpret quotients of whole numbers. (3.RA.A.2)
- Multiply and divide with numbers and results within 100 using strategies such as the relationship between multiplication and division or properties of operations. Know all products of two one-digit numbers. (3.RA.C.7)
- Demonstrate fluency with products within 100. (3.RA.C.8)
- Write and solve two-step problems involving variables using any of the four operations. (3.RA.D.9)
- Interpret the reasonableness of answers using mental computation and estimation strategies including rounding. (3.RA.D.10)

#### Supporting Standards

- Use multiplication and division within 100 to solve problems. (3.RA.A.4)
- Apply properties of operations as strategies to multiply and divide. (3.RA.B.6)
- Multiply whole numbers by multiples of 10 in the range 10-90. (3.NBT.A.4)

# THIRD GRADE MATH

## Unit 5: Fractions as Numbers

*Students make sense of fractions as numbers and reason about fractions using area and number line diagrams.*

<b>Unit Essential Learning Targets</b>	
<b><i>Enduring Understandings</i></b>	<b><i>Essential Questions</i></b>
<ul style="list-style-type: none"> <li>● Fractions represent equal parts of a whole set.</li> <li>● The size of the fraction depends on the size of the whole it is divided into.</li> <li>● Different fractions can represent the same amount.</li> </ul>	<ul style="list-style-type: none"> <li>● What does a fraction represent?</li> <li>● How can the same number be represented in multiple ways?</li> <li>● How do you know whether a fraction is greater than, less than, or equal to another fraction?</li> </ul>
<b><i>Students must know:</i></b>	<b><i>Students must be able to:</i></b>
<ul style="list-style-type: none"> <li>● Vocabulary               <ul style="list-style-type: none"> <li>○ Sixth(s)</li> <li>○ Eighth(s)</li> <li>○ Denominator</li> <li>○ Non-unit Fraction</li> <li>○ Numerator</li> <li>○ Equivalent Fractions</li> <li>○ Unit Fraction</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Understand that unit fractions are formed by partitioning shapes into equal parts.</li> <li>● Understand that fractions are built from unit fractions such that a fraction <math>a/b</math> is the quantity formed by <math>a</math> parts of size <math>1/b</math>.</li> <li>● Understand a fraction as a number and represent fractions on the number line.</li> <li>● Explain equivalence of fractions in special cases and express whole numbers as fractions and fractions as whole numbers.</li> <li>● Compare 2 fractions with the same numerator or denominator, recording the results with the symbol <math>&gt;</math>, <math>&lt;</math>, or <math>=</math>.</li> </ul>

# THIRD GRADE MATH

## Unit 5: Fractions as Numbers

### Missouri Learning Standards

#### Priority Standards

- Understand a unit fraction as the quantity formed by one part when a whole is partitioned into equal parts. (3.NF.A.1)
- Understand that when a whole is partitioned equally, a fraction can be used to represent a portion of the whole. (3.NF.A.2.a)
- Understand that when a whole is partitioned equally, a fraction can be used to represent a portion of the whole. (3.NF.A.2.b)
- Recognize and generate equivalent fractions using visual models, and justify why the fractions are equivalent. (3.NF.A.5)
- Compare two fractions with the same numerator or denominator using the symbols  $>$ ,  $=$ , or  $<$ , and justify the solution. (3.NF.A.6)
- Explain why fraction comparisons are only valid when the two fractions refer to the same whole. (3.NF.A.7)
- Partition shapes into parts with equal areas, and express the area of each part as a unit fraction of the whole. (3.GM.A.3)

#### Supporting Standard

- Represent fractions on a number line. (3.NF.A.3.a)

# THIRD GRADE MATH

## Unit 6: Measuring Length, Time, Liquid, Volume, and Weight

*Students estimate, measure, and solve problems involving length, time, liquid volume, and weight.*

<b>Unit Essential Learning Targets</b>	
<b><i>Enduring Understandings</i></b>	<b><i>Essential Questions</i></b>
<ul style="list-style-type: none"> <li>● Different units are used to measure different attributes.</li> <li>● Measurement allows us to compare the size of objects by using a standard unit of measurement.</li> </ul>	<ul style="list-style-type: none"> <li>● How can we represent length data on a line plot?</li> <li>● How can we estimate, measure, and solve problems about volumes of liquids and weights of objects?</li> <li>● How do we tell time to the minute and solve problems about elapsed time?</li> </ul>
<b><i>Students must know:</i></b>	<b><i>Students must be able to:</i></b>
<ul style="list-style-type: none"> <li>● Vocabulary               <ul style="list-style-type: none"> <li>○ Gram</li> <li>○ Kilogram</li> <li>○ Weight</li> <li>○ Liquid Volume</li> <li>○ Liter</li> <li>○ Mixed Number</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Measure lengths using rulers marked with halves and fourths of an inch.</li> <li>● Generate length data to make a line plot.</li> <li>● Measure and estimate weights and liquid volumes of objects.</li> <li>● Tell time to the minute.</li> <li>● Solve problems involving addition and subtraction of time intervals in minutes.</li> <li>● Solve problems involving the 4 operations and measurement contexts.</li> </ul>

**THIRD GRADE MATH**  
**Unit 6: Measuring Length, Time, Liquid, Volume, and Weight**

**Missouri Learning Standards**

**Priority Standard**

- Measure or estimate length, liquid volume, and weight of objects. (3.GM.B.7)

**Supporting Standards**

- Tell and write time to the nearest minute. (3.GM.B.4)
- Estimate time intervals in minutes. (3.GM.B.5)
- Solve problems involving addition and subtraction of minutes. (3.GM.B.6)
- Use the four operations to solve problems involving lengths, liquid volumes, or weights given in the same units. (3.GM.B.8)

# THIRD GRADE MATH

## Unit 7: Two-Dimensional Shapes and Perimeter

*Students identify and define attributes of different quadrilaterals and explore the perimeter of two-dimensional shapes.*

<b>Unit Essential Learning Targets</b>	
<b><i>Enduring Understandings</i></b>	<b><i>Essential Questions</i></b>
<ul style="list-style-type: none"> <li>● Shapes can be classified and described based on their attributes.</li> <li>● The perimeter of a shape is the total distance around the outside edge.</li> </ul>	<ul style="list-style-type: none"> <li>● How can a shape have more than 1 name?</li> <li>● What does perimeter tell you about a shape?</li> <li>● How do a shape's attributes relate to its perimeter and area?</li> </ul>
<b><i>Students must know:</i></b>	<b><i>Students must be able to:</i></b>
<ul style="list-style-type: none"> <li>● Perimeter</li> <li>● Rhombus</li> <li>● Attribute</li> <li>● Hexagon</li> <li>● Length</li> <li>● Pentagon</li> <li>● Quadrilateral</li> <li>● Side</li> <li>● Square Corner</li> <li>● Rectangle</li> <li>● Square</li> <li>● Triangle</li> <li>● Two-dimensional</li> </ul>	<ul style="list-style-type: none"> <li>● Reason about shapes and their attributes.</li> <li>● Determine the perimeter of two-dimensional shapes, including when all or some side lengths are given.</li> <li>● Solve problems involving perimeter and area, in and out of context.</li> <li>● Apply geometric understanding to solve problems.</li> </ul>

# THIRD GRADE MATH

## Unit 7: Two-Dimensional Shapes and Perimeter

### Missouri Learning Standards

#### Priority Standards

- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category. (3.GM.A.1)
- Distinguish rhombuses and rectangles as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to these subcategories. (3.GM.A.2)
- Partition shapes into parts with equal areas, and express the area of each part as a unit fraction of the whole. (3.GM.A.3)
- Solve problems involving perimeters of polygons. (3.GM.D.15)
- Understand that rectangles can have equal perimeters but different areas, or rectangles can have equal areas but different perimeters. (3.GM.D.16)