



SCHOOL DISTRICT OF MONROE

Preparing for the Future, One Child at a Time

Mathematics (Grade 6)

Course Description:

The curriculum for this course is developed from the [Wisconsin Common Core State Math Standards for 6th Grade](#). This is a required course. The information in this course overview outlines what students should understand and be able to do by the end of the semester/year.

Core Connections, Course 1 is the first of a three-year sequence of courses designed to prepare students for a rigorous college preparatory high school mathematics course. On a daily basis, students in *Core Connections, Course 1* use problem-solving strategies, questioning, investigating, analyzing critically, gathering and constructing evidence, and communicating rigorous arguments justifying their thinking. Under teacher guidance students learn in collaboration with others while sharing information, expertise, and ideas. The course helps students to develop multiple strategies to solve problems and to recognize the connections between concepts. The lessons in the course meet all of the content standards and embed the “Mathematical Practices” of the Common Core State Standards released in June 2010.

Mastery Standards:

Expressions & Equations

Write and evaluate numerical expressions involving whole-number exponents. (6.EE.1)

Write, read, and evaluate expressions in which letters stand for numbers. (6.EE.2)

Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. (6.EE.6)

Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all nonnegative rational numbers. (6.EE.7)

Geometry

Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. (6.G.1)

Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. (6.G.2)

Number System

Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $3/4$ -cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi? (6.NS.1)

Fluently add, subtract, multiply, and divide multi-digit integers using the standard algorithm for each operation. (6.NS.2)

Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. (6.NS.3)

Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. (6.NS.6c)

Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (6.NS.8)

Statistics & Probability

Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (6.SP.4)

Unit	Description of Unit and Learning Targets
<p>Unit 1 Title: Introduction & Representation</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How do I add, subtract, multiply and divide multi-digit integers to solve a logic problem? • How is perimeter different from area? • How do I interpret data on a histogram and use it to make generalized statements? 	<p>Students will use basic math skills to solve problems, interpret graphs and find the area and perimeter of rectangles.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can add, subtract, multiply and divide multi-digit integers. • I can find the area and perimeter of rectangles.
<p>Unit 2 Title: Arithmetic Strategies & Area</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What tools do we need to use to collect and represent collected data? • What would be a real world application for finding area and perimeter? • How do you solve for area, surface area, and volume? 	<p>Students will learn ways to represent collected data.</p> <p>Students will learn how to measure area and perimeter by composing and decomposing irregular polygons.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can interpret and create a dot plot, bar graph, histogram and a stem-and-leaf plot. • I can find the area and perimeter of irregular figures by composing and decomposing irregular polygons.
<p>Unit 3 Title: Portions & Integers</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How can I use percents, decimals, and fractions to describe a portion of a whole? • How can I change a fraction to a percent or decimal? And vice versa • How do I add and subtract integers and how can I use the absolute value of a number to help solve these problems? 	<p>Students will find equivalent fractions and create portion webs to convert between fractions decimals and percents.</p> <p>Students will learn to add positive and negative numbers.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can explain the meaning of adding and subtracting numbers and use these to represent quantities. • I can show numbers in more than one way: 50%, $\frac{1}{2}$ 0.5 etc.
<p>Unit 4 Title: Variables & Rates</p> <p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How do I use variables to represent unknown quantities? • How do I find the value of an 	<p>Students will write equivalent expressions with variable and find the value of a variable.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can explain what a variable represents and use it to solve

<p>algebraic expression when the value of the variable is unknown?</p>	<p>problems involving expressions.</p>
<p>Unit 5 Title: Multiplying Fractions & Area <u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How can understanding fractions make your life easier? • How do I use concrete materials and drawings to understand and show understanding of multiplying fractions? • How can I calculate the area of any figure? • How would you classify a figure based on it's vertices? 	<p>Students will be able to multiply fractions and reduce to the lowest possible term</p> <p>Students will find the area and learn the formula for rectangles, triangles, parallelograms, and trapezoids.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can find the area of different shapes using the formula taught and/or rearranging shapes into a rectangle. • I can multiply fractions by examining portions of fractions and then connect this to finding the products of mixed numbers
<p>Unit 6 Title: Dividing Fractions & Building Expressions <u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How do I use concrete materials and diagrams to understand and show understanding of division of fractions? • How can we represent and solve situations involving variable quantities? • How will I use order of operations to find the correct value of a numerical expression, using real world problems? 	<p>Students will use division of fractions to solve equations using proper fractions and mixed numbers.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can use order of operations to simplify expressions and find the solution using given values. • I can divide fractions and reduce to lowest terms or mixed numbers.
<p>Unit 7 Title: Rates & Operations <u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How can I divide fractions, mixed numbers and decimals? • How do I combine like terms using order of operations? 	<p>Students will divide more efficiently using all number types.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can simplify using division and combining like terms, while developing proper methods for doing so.
<p>Unit 8 Title: Statistics & Multiplication Equations <u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How can the collection, organization, interpretation, and display of data be used to answer questions? 	<p>Students will use box plots, histograms, and dot plots to determine mean and median</p> <p>Students will use equations to solve logic problems</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can explain, create and read measures of central tendency
<p>Unit 9 Title: 9 Volume & Percents <u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How do you solve for area, surface area, and volume? 	<p>Students will find surface area and volume of three-dimensional solid objects.</p> <p><u>Learning Targets:</u></p> <ul style="list-style-type: none"> • I can use my knowledge of area to calculate surface area and volume.