



# Mequon-Thiensville School District

## Middle School Math Course Scope & Sequence

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<b>Description of Subject Area</b>	<p>The MTSD mathematics curriculum ensures all students develop the behaviors and habits of mind necessary to be mathematically proficient and engage in deep mathematical understanding. To develop the necessary behaviors and habits of mind, MTSD math teachers use the 8 Standards for Mathematical Practice:</p> <ol style="list-style-type: none"><li>1. Make sense of problems and persevere in solving them.</li><li>2. Reason abstractly and quantitatively.</li><li>3. Construct viable arguments and critique the reasoning of others.</li><li>4. Model with mathematics.</li><li>5. Use appropriate tools strategically.</li><li>6. Attend to precision.</li><li>7. Look for and make use of structure.</li><li>8. Look for and express regularity in repeated reasoning.</li></ol> <p><b>Mission of Math in MTSD:</b> Together, we <i>inspire</i> students to gain an understanding and appreciation of mathematics that lasts a lifetime and evolves to meet the changing demands <i>they will experience in life</i> to shape our ever changing world.</p> <p><b>Vision of Math in MTSD:</b> Empowering all math students to become accurate, efficient, engaged and flexible problem solvers.</p>
<b>Grade Levels</b>	6-8
<b>Courses</b>	<ul style="list-style-type: none"><li>• <a href="#">Grade 6 Math</a></li><li>• <a href="#">Grade 6 Double-Accelerated</a></li><li>• <a href="#">Grade 7 Math</a></li><li>• <a href="#">Algebra 1</a></li><li>• <a href="#">Honors Algebra</a></li><li>• <a href="#">Honors Geometry</a></li></ul>



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<b>Course Name:</b> Grade 6 Math	<b>Department:</b> Math
<b>Grade Level:</b> 6	<b>Duration:</b> All year
<b>Resource:</b> Great Minds. (2013). <i>Eureka Math: A Story of Ratios</i> . Great Minds.	

### Course Overview:

The Common Core State Standards and the Standards for Mathematical Practice drive sixth grade math. Students are engaged in units that allow for deeper understanding. Students will experience math through concrete models, visual representations, and abstract ideas, which allow for hands-on opportunities in the classroom and conversations which involve higher-level thinking skills. The Standards for Mathematical Practice are utilized to ensure students are gaining a deep and thorough understanding of concepts through perseverance, precision, communication, and the use of multiple strategies while solving problems.

**Primary Resource:** Eureka Math

Topics/Units:	Time Frame:
1. <b>Arithmetic Operations Including Division of Fractions</b> - Students complete their understanding of the four operations as they study division of whole numbers, division by a fraction, and operations on multi-digit decimals.	4 days
2. <b>Ratios and Unit Rates</b> - Students are introduced to the concept of ratio and rate.	37 days
3. <b>Percent and Proportional Relationship</b> - Students will build on their conceptual understanding of percent. They will realize that percent can be greater than 100% or less than 100%.	37 days
4. <b>Statistics</b> - Students move from simply representing data, into analyzing data.	16 days
5. <b>Arithmetic Operations Including Division of Fractions</b> - Students complete their understanding of the four operations as they study division of whole numbers, division by a fraction, and operations on multi-digit decimals.	17 days
6. <b>Rational Numbers</b> - Students extend the number line (both horizontally and vertically) to include the opposites of whole numbers.	16 days
7. <b>Expressions and Equations</b> - Students extend their arithmetic work to include using letters to represent numbers.	27 days
8. <b>Area, Surface Area, and Volume Problems</b> - Students utilize their previous experiences in shape composition and decomposition in order to understand and develop formulas for area, volume, and surface area.	5 days



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<b>Course Name:</b> Grade 6 - Double-Accelerated Math	<b>Department:</b> Math
<b>Grade Level:</b> 6	<b>Duration:</b> All year
<b>Resource:</b> Great Minds. (2013). <i>Eureka Math: A Story of Ratios</i> . Great Minds.	

### Course Overview:

The Double Accelerated Math Program (DA) begins in 6th grade and provides students the opportunity to learn the 6th and 7th grade math curriculum in one school year. It is part of a 6th-12th grade program in mathematics that culminates in Multivariable Calculus in 12th grade.

Students are engaged in units that allow for deeper understanding. Students will experience math through concrete models, visual representations, and abstract ideas, which allow for hands-on opportunities in the classroom, and conversations which involve higher-level thinking skills. The Standards for Mathematical Practice are utilized to ensure students are gaining a deep and thorough understanding of concepts through perseverance, precision, communication, and the use of multiple strategies while solving problems.

**Primary Resource:** Eureka Math

Topics/Units:	Time Frame:
1. <b>Ratios and Unit Rates</b> - Students are introduced to the concepts of ratio and rate.	<b>13 days</b>
2. <b>Ratio and Proportional Relationships</b> - Students will build upon their reasoning about ratios, rates, and unit rates to formally define proportional relationships and the constant of proportionality. Students will be introduced to the concept of slope as the constant of proportionality/unit rate.	<b>17 days</b>
3. <b>Arithmetic Operations Including Division of Fractions</b> - Students complete their understanding of four operations as they study division of whole numbers, division by a fraction, and operations on multi-digit decimals.	<b>18 days</b>
4. <b>Rational Numbers</b> - Students extend the number line (both horizontally and vertically) to include the opposites of whole numbers.	<b>16 days</b>
5. <b>Expressions and Equations</b> - Students extend their arithmetic work to include using letters to represent numbers.	<b>40 days</b>
6. <b>Expressions and Equations (7-3)</b> - This module consolidates and expands upon students' understanding of equivalent expressions as they apply the properties of operations (associative, commutative, and distributive) to write expressions in both standard form (by expanding	<b>25 days</b>



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products into sums) and in factored form (by expanding sums into products).	
7. <b>Percent and Proportional Relationships</b> - Students deepen their understanding of ratios and proportional relationships by solving a variety of percent problems.	<b>19 days</b>

<b>Course Name:</b> Grade 7 Math	<b>Department:</b> Math
<b>Grade Level:</b> 7	<b>Duration:</b> All year
<b>Resource:</b> Great Minds. (2013). <i>Eureka Math: A Story of Ratios</i> . Great Minds.	

### Course Overview:

The Common Core State Standards and the Standards for Mathematical Practice drive seventh grade math instruction. Students are engaged in units that allow for deeper understanding. Students will experience math through concrete models, visual representations, and abstract ideas, which allow for hands-on opportunities in the classroom, and conversations which involve higher-level thinking skills. The Standards for Mathematical Practice are utilized to ensure students are gaining a deep and thorough understanding of concepts through perseverance, precision, communication, and the use of multiple strategies while solving problems.

**Primary Resource:** Eureka Math

Topics/Units:	Time Frame:
1. <b>Ratios and Proportional Relationships</b> - Students will build upon their reasoning about ratios, rates, and unit rates to formally define proportional relationships and the constant of proportionality.	<b>22 days</b>
2. <b>Expressions and Equations</b> - This module consolidates and expands upon students' understanding of equivalent expressions as they apply the properties of operations (associative, commutative, and distributive) to write expressions in both standard form (by expanding products into sums) and in factored form (by expanding sums into products).	<b>33 days</b>
3. <b>Geometry</b> - Students delve into several geometry topics including angles, area, surface area, and volume. Students will be introduced to the Pythagorean Theorem as it applies to triangles.	<b>27 days</b>



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<b>Course Name:</b> Algebra I	<b>Department:</b> Math
<b>Grade Level:</b> 8	<b>Duration:</b> All year
<b>Resource:</b> Larson, R. & Boswell, L. (2018). <i>Algebra 1: A Common Core Curriculum</i> . Big Ideas Math.	

### Course Overview:

Algebra is a way of thinking and a set of concepts and skills that enable students to generalize, model, and analyze mathematical situations. Algebra provides a systematic way to investigate relationships, helping to describe, organize, and understand the world. Algebra 1 continues the study of variables, constants, expressions and equations. All topics & units of study will be reinforced using the concepts of setting up and solving real-world problems.

Primary Resource: **Big Ideas Math: Algebra**

Topics/Units:	Time Frame:
1. <b>Language of Algebra</b> - Students gain knowledge of the terminology needed to decipher, analyze and problem-solve questions.	<b>7 days</b>
2. <b>Solving Linear Equations</b> - Students learn how to solve multi-step equations, equations involving absolute value, and rewriting equations and formulas.	<b>14 days</b>
3. <b>Linear Inequalities</b> - Students apply/extend what they have learned about Linear Equations and apply that knowledge to inequalities.	<b>11 days</b>
4. <b>Graphing Linear Functions</b> - Students will graph linear functions written in standard form and slope-intercept form.	<b>12 days</b>
5. <b>Writing Linear Functions</b> - Students learn how to write equations in slope-intercept and point-slope form. Students also create scatter plots and determine line of best fit.	<b>12 days</b>
6. <b>Systems</b> - Students will solve systems of equations by graphing, substitution, and elimination.	<b>12 days</b>
7. <b>Exponential Functions</b> - Students learn about exponential functions and the attributes of exponential growth and decay functions.	<b>18 days</b>
8. <b>Polynomial Equations and Factoring</b> - Students will learn how to add, subtract, multiply, and factor polynomials.	<b>18 days</b>
9. <b>Graphing Quadratics</b> - Students will learn to graph quadratic equations from multiple forms of the equation.	<b>14 days</b>
10. <b>Solving Quadratics</b> - Students will learn multiple ways to solve quadratic equations.	<b>16 days</b>



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11. <b>Radicals</b> - Students will understand radical functions and equations.	<b>10 days</b>
12. <b>Data Analysis</b> - Students will understand data through the use of different data displays.	<b>12 days</b>

<b>Course Name:</b> Honors Algebra	<b>Department:</b> Math
<b>Grade Level:</b> 8	<b>Duration:</b> All year
<b>Resource:</b> Larson, R. & Boswell, L. (2018). <i>Algebra 1: A Common Core Curriculum</i> . Big Ideas Math.	

### Course Overview:

This is a rigorous mathematics course stressing deductive reasoning. This course is structured to challenge mathematical minds. Major topics of the Honors Algebra 1 curriculum will include linear equations, linear systems, factoring of polynomials, algebraic fractions, and techniques of graphing, radicals and exponents, quadratic equations, an introduction to functions, mathematical induction, and probability. This is the same curriculum as the Honors Algebra 1 course taught at the high school. Some middle school concepts are reviewed with more depth to ensure mastery for middle school students.

**Primary Resource: Big Ideas Math: Algebra**

Topics/Units:	Time Frame:
1. <b>Interpreting Graphs</b> - Students will be analyzing the data and related graphs.	<b>10 days</b>
2. <b>Language of Algebra</b> - Students will learn algebraic properties and how to apply them to mathematical problems.	<b>8 days</b>
3. <b>Solving Linear Equations</b> - Students learn how to solve multi-step equations, equations involving absolute value and rewriting equations and formulas.	<b>8 days</b>
4. <b>Linear Inequalities</b> - Students apply what they have learned about Linear Equations and apply that knowledge to inequalities.	<b>7 days</b>
5. <b>Graphing Linear Functions</b>	<b>9 days</b>
6. <b>Writing Linear Functions</b> - Students will write equations in slope intercept, point-slope form, create scatter plots and determine line of best fit.	<b>9 days</b>
7. <b>Systems</b> - Students will solve equations by graphing, substitution, and elimination.	<b>8 days</b>
8. <b>Exponential Functions</b> - Students will learn about exponential functions.	<b>12 days</b>



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9. <b>Probability</b> - Students will learn how to find probability using a variety of methods as well as finding the probability of compound events.	7 days
10. <b>Polynomial Equations and Factoring</b> - Students will learn how to add, subtract, multiply, and factor polynomials.	10 days
11. <b>Graphing Quadratics</b> - Students will learn to graph quadratic equations from multiple forms of the equation.	9 days
12. <b>Solving Quadratics</b> - Students will learn multiple ways to solve quadratic equations.	13 days
13. <b>Radicals</b> - Students will understand radical functions and equations.	13 days
14. <b>Data Analysis</b> - Students will understand data through the use of different data displays.	6 days

<b>Course Name:</b> Honors Geometry	<b>Department:</b> Math
<b>Grade Level:</b> 8	<b>Duration:</b> All year
<b>Resource:</b> Larson, R. & Boswell, L. (2015). <i>Geometry: A Common Core Curriculum</i> . Big Ideas Math.	

### Course Overview:

The study of Geometry involves thinking critically to deduce answers given specific facts and theorems. Major topics of the Honors Geometry curriculum include points/lines/planes, reasoning and proof, congruent triangles, quadrilaterals, similar figures, right triangles and trigonometry, transformations, circles, and surface area/volume. This is the same curriculum as the Honors Geometry course taught at the high school. Some middle school concepts are reviewed with more depth to ensure mastery for middle school students.

**Primary Resource: Big Ideas Math: Geometry**

Topics/Units:	Time Frame:
1. Basics of Geometry	13 days
2. Reasoning and Proofs	9 days
3. Parallel and Perpendicular Lines	9 days
4. Transformations	10 days
5. Congruent Triangles	13 days
6. Relationships Within Triangles	11 days
7. Quadrilaterals and Other Polygons	9 days
8. Similarity	8 days
9. Right Triangles and Trigonometry	11 days
10. Circles	11 days



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11. Circumference, Area, and Volume 12. Probability	13 days 11 days
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