

## Model Curricula Alignment for Connecticut Mathematics

Resource Name: MidSchoolMath

### Alignment Grade 8

Model Unit Name	Model Unit Standards	Resource Unit(s) Number	Resources Lessons	Pacing
<i>This is the title of the unit in the model curricula</i>	<i>These are the standards addressed in the unit</i>	<i>This is the unit(s) that aligns with the model unit from the resource</i>	<i>These are the lessons from the identified units that align to the standards within the model unit</i>	<i>This is the expected number of days for instruction</i>
Real Numbers	8.NS.A.1, 8.NS.A.2, 8.EE.A.1, 8.EE.A.2, 8.EE.A.3, 8.EE.A.4	8.NS.A 8.EE.A	8.NS.A.1 Warp Speed 8.NS.A.2 Treasure Hunt 8.EE.A.1 The Big Shrink 8.EE.A.2 Ship Shape 8.EE.A.3 Malaria Medicine 8.EE.A.4 The Great Discovery	≈ 24-30 days
Pythagorean Theorem	8.EE.A.2, 8.G.B.6, 8.G.B.7, 8.G.B.8	8.G.B	8.EE.A.2 Ship Shape 8.G.B.6 Phil & Ned's Incredible Lesson 8.G.B.7 The Road Less Traveled 8.G.B.8 Seeking Safe Harbor	≈12-15 days
Congruence and Similarity	8.G.A.1, 8.G.A.2, 8.G.A.3, 8.G.A.4, 8.G.A.5	8.G.A	8.G.A.1abc Artemis Transforms 8.G.A.2 Knee Replacement 8.G.A.3 Tile Transformation	≈ 20-25 days

Linear Relationships	8.EE.B.5, 8.EE.B.6, 8.EE.C.7, 8.F.A.1, 8.F.A.2, 8.F.A.3, 8.F.B.4, 8.F.B.5	8.EE.B 8.EE.C (partial) 8.F.A 8.F.B	8.G.A.4 Dakota Jones & the Hall of Records 8.G.A.5 Puppy Parallels	≈ 36-40 days
			8.EE.B.5 Space Race 8.EE.B.6 Ghost Island 8.EE.C.7a The Business Guru in YOU! 8.EE.C.7b Petunia's Pickle Problem 8.F.A.1 Flight Functions	

			8.F.A.2 Happy Trails 8.F.A.3 Le Monsieur Chef 8.F.B.4 Race Day 8.F.B.5 Twin Tactics	
Systems of Linear Relationships	8.EE.C.7, 8.EE.C.8, 8.F.A.2, 8.F.B.4	8.EE.C (partial) 8.F.A (partial) 8.F.B (partial)	8.EE.C.7a The Business Guru in YOU! 8.EE.C.7b Petunia's Pickle Problem 8.EE.C.8a Show Me the Money 8.EE.C.8b Mars Rocks! 8.EE.C.8c Training Day 8.F.A.2 Happy Trails 8.F.B.4 Race Day	≈ 28-35 days
Volume	8.G.C.9	8.G.C	8.G.C.9 The Dawn of Anesthesia	≈ 4-5 days
Patterns in Data	8.SP.A.1, 8.SP.A.2, 8.SP.A.3, 8.SP.A.4,	8.SP.A	8.SP.A.1 Cholera Outbreak! 8.SP.A.2 Escape From Mars 8.SP.A.3 The Slope of Sprouts 8.SP.A.4 Bubonic Plague	≈ 16-20 days

### Scope and Sequence

*If a district uses this resource to implement the state model curriculum for grade 8, the following scope and sequence should be followed to ensure alignment and attention to the progressions of mathematics.*

***\*\*A district is welcome to use their own scope & sequence as well. The main consideration being would be the unit tests in this curriculum (Milestone Assessments) are aligned to the units below.***

Core Curriculum by MidSchoolMath is structured by grade, domain, cluster and standard levels. MidSchoolMath provides general guidelines for scope, sequence and pacing in the Teacher's Guide for each grade level (summarized below) to ensure that all standards for the grade level are included. Essential concepts (Major Clusters) are allotted additional time throughout the year. The sequence provided in the materials is specifically designed to provide a framework to allow teachers sufficient time for teaching each standard throughout the year. Additionally, the materials are intentionally designed for students to work with more 'concrete' forms of mathematics prior to abstract concepts. Finally, the structure of the curriculum is sequenced to allow for completion of topics before associated summative assessments, and sequencing within lessons progresses from conceptual work to practice with exercises. Core Curriculum by MidSchoolMath is based on estimated 36 weeks or 180 days per school year. Lessons typically take four days; if necessary for content coverage, they may be compressed to three days.

Districts using Core Curriculum may opt to use the Model Unit sequence instead, and can order lessons as outlined in the crosswalk above.

Order	Unit Number/Title and Lessons	Lesson Objectives	# of days (assume 1 hour of instruction)	Number of weeks
The Number System	<b>8.NS</b> 8.NS.A.1 Warp Speed 8.NS.A.2 Treasure Hunt	<ul style="list-style-type: none"><li>• Know that numbers that are not rational are called irrational.</li><li>• Convert rational numbers to decimal expansions and decimal expansions to rational numbers.</li><li>• Use rational approximations of irrational numbers to compare them and locate them on a number line.</li></ul>	≈ 8-10 days	≈ 2 weeks

Expressions & Equations	<b>8.EE.A</b> 8.EE.A.1 The Big Shrink 8.EE.A.2 Ship Shape 8.EE.A.3 Malaria Medicine 8.EE.A.4 The Great Discovery	<ul style="list-style-type: none"> <li>• Know and apply the properties of integers exponents to generate equivalent numerical expressions.</li> <li>• Use square root and cube root symbols to represent solutions to simple equations.</li> <li>• Evaluate perfect square roots and perfect cube roots.</li> <li>• Represent very large or very small quantities using a single digit multiplied by an integer power of 10.</li> <li>• Perform operations with numbers in scientific notation.</li> </ul>	≈ 16-20 days	≈ 3-4 weeks
	<b>8.EE.B</b> 8.EE.B.5 Space Race 8.EE.B.6 Ghost Island	<ul style="list-style-type: none"> <li>• Graph proportional relationships, interpreting the unit rate as the slope of the graph.</li> <li>• Compare two different proportional relationships</li> </ul>	≈ 8-10 days	≈ 2 weeks

	<p><b>8.EE.C</b>  8.EE.C.7a The Business Guru in YOU!  8.EE.C.7b Petunia's Pickle Problem  8.EE.C.8a Show Me the Money  8.EE.C.8b Mars Rocks!  8.EE.C.8c Training Day</p>	<p>represented in different ways.</p> <ul style="list-style-type: none"> <li>• Use similar triangles to explain why the slope is the same between any two points on a non-vertical line.</li> <li>• Give examples of linear equations in one variable with one solution, infinite solutions or no solutions.</li> <li>• Transform a given equation into simpler forms until ending with <math>x = a</math>, <math>a = a</math>, or <math>a = b</math>.</li> <li>• Solve linear equations with rational number coefficients, using the distributive property and collecting like terms.</li> <li>• Understand that solutions to a system of linear equations in two variables is the intersection of their graphs.</li> <li>• Solve systems of two linear equations in two variables. • Solve real-world and mathematical problems leading to two linear equations in two variables.</li> </ul>	<p>≈20-25 days</p>	<p>≈4-5 weeks</p>
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Functions	<b>8.F.A</b> 8.F.A.1 Flight Functions 8.F.A.2 Happy Trails 8.F.A.3 Le Monsieur Chef	<ul style="list-style-type: none"> <li>Understand that a function is a rule that assigns to each input exactly one output.</li> <li>Compare properties of two functions each represented in a different way.</li> <li>Interpret the equation <math>y=mx+b</math> as defining a linear</li> </ul>	≈ 12-15 days	≈ 2-3 weeks
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	<b>8.F.B</b> 8.F.B.4 Race Day 8.F.B.5 Twin Tactics	function whose graph is a straight line and give examples of non-linear functions.  <ul style="list-style-type: none"> <li>Construct a function to model a linear relationship between two quantities.</li> <li>Determine and interpret the rate of change and initial value of a function either from a table or graph.</li> <li>Describe qualitatively the functional relationship between two quantities by analyzing a graph.</li> <li>Sketch a graph given a verbal qualitative description.</li> </ul>	≈ 8-10 days	≈ 2 weeks
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Geometry	<b>8.G.A</b> 8.G.A.1abc Artemis Transforms 8.G.A.2 Knee Replacement 8.G.A.3 Tile Transformation 8.G.A.4 Dakota Jones & the Hall of Records 8.G.A.5 Puppy Parallels	<ul style="list-style-type: none"> <li>• Verify experimentally the properties of rotations, reflections and translations • Understand that a 2-D figure is congruent to another if the second can be obtained from the first by a series of rotations, reflections and translations.</li> <li>• Given two congruent figures, describe a sequence that maps one to the other. • Describe the effect of dilations, translations, rotations and reflections on 2-D figures using coordinates.</li> <li>• Understand that a 2-D figure is similar to another if the second can be obtained from the first by a series of rotations, reflections and translations.</li> </ul>	≈ 16-20 days	≈ 4-5 weeks
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	<p><b>8.G.B</b>  8.G.B.6 Phil &amp; Ned's Incredible Lesson  8.G.B.7 The Road Less Traveled  8.G.B.8 Seeking Safe Harbor</p>	<ul style="list-style-type: none"> <li>Given two similar figures, describe a sequence that maps one to the other.</li> <li>Use informal arguments to establish facts about angles created when parallel lines are cut by a transversal.</li> <li>Explain a proof of the Pythagorean Theorem and its converse.</li> <li>Apply the Pythagorean Theorem to determine unknown side lengths in right triangles, both in two and three dimensions.</li> <li>Apply the Pythagorean Theorem to find the distance between two points on a coordinate plane.</li> </ul>	<p>≈ 12-15 days</p>	<p>≈ 2-3 weeks</p>
	<p><b>8.G.C</b>  8.G.C.9 The Dawn of Anesthesia</p>	<ul style="list-style-type: none"> <li>Know and use the formulas for volumes of cones, cylinders, and spheres.</li> </ul>	<p>≈ 4-5 days</p>	<p>≈ 1 week</p>



Statistics & Probability	<b>8.SP.A</b> 8.SP.A.1 Cholera Outbreak! 8.SP.A.2 Escape From Mars 8.SP.A.3 The Slope of Sprouts 8.SP.A.4 Bubonic Plague	<ul style="list-style-type: none"> <li>Construct and interpret scatter plots for bivariate data to investigate patterns of association.</li> <li>Informally fit a straight line for scatter plots that suggest a linear association.</li> <li>Use the equation of a linear model of bivariate data to solve problems; interpret the slope and y-intercept.</li> <li>Construct and interpret two-way tables summarizing data on two categorical variables.</li> </ul>	≈ 12-15 days	≈ 2-3 weeks
		<ul style="list-style-type: none"> <li>Use row- and columnrelative frequencies in a twoway table to describe possible association between two variables.</li> </ul>		
<b>Supports of Diversity, Equity and Inclusion</b>				
<i>Please provide any information relative to supporting culturally responsive instruction, multi-language learners, and students with disabilities</i>				

From a high-level perspective, *Core Curriculum* has been designed to allow **all students** to engage in learning grade-level math standards. *The Math Simulator* is intentionally designed, and placed prior to teacher instruction, so that students have the freedom to enter into the problem where they are. Students are specifically encouraged to conceive of multiple solutions and solution paths. Collaboration is encouraged, with a focus and emphasis on using processes and strategies over rushing to arrive at an answer.

Each *Detailed Lesson Plan* provides lesson-specific recommendations for differentiation, in two places. The “Strategies for Supporting Diverse Learners” Chart found in each *Detailed Lesson Plan* provides accommodations, modifications and extensions for that lesson to use with EL and special populations, including supporting students with skill gaps and special education needs, and those identified as gifted. The “Practice Printable Differentiation Plan” provides recommendations for remediation, practice and enrichment to meet the needs of all students. Resources to support these students are further embedded and integrated within *Core Curriculum*, such as *Test Trainer Pro* and *Mathematical Language Routines*.

All *Detailed Lesson Plans* also contain at least one strategy around **Mathematical Language Routines (MLRs)** for each lesson standard; these MLRs apply to all students but are particularly beneficial for English Language Learners. An overview on using MLRs, and a professional development module on MLRs, can be accessed within the system from the Teacher Dashboard.

*Test Trainer Pro* allows for students to practice math items in every domain at their own ability level, be that at grade level, below grade level, or above grade level. Teachers have access to lessons from all grade levels 5-8, which can be used to assign specific lessons outside of the current course with individual students or groups of students, as needed.

Videos are closed captioned in English and also have the option of Spanish subtitles to support EL and students who are deaf or hard of hearing. Highcontrast text is used throughout and can be resized by users; images can also be doubled in size. Users have the ability to adjust and adapt background colors and sizes through browser settings, for improved accessibility, and content works with common Chrome extensions to further accessibility.

To support schools and districts with large populations of Spanish-speakers, MidSchoolMath publishes Spanish-language versions of all student materials and has built in Spanish-language subtitles for all videos. The Spanish-language print materials can be accessed online (alongside Englishlanguage materials) or districts may opt to purchase *Student Workbooks (Spanish Edition)*. All Spanish-language materials were created through a professional translation process, undertaken by humans and overseen by Spanish-speaking educators, to ensure authenticity and understanding.