



# Curriculum and Instruction – Mathematics

Quarter 2

Grade 8

Mathematics  
Grade 8: Year at a Glance  
2019-2020

Q1		Q2		Q3		Q4	
Module 1 Aug. 12-Sept. 6	Module 2 Sept. 9 -Sept. 23	Module 3 Sept. 23-Oct. 10	Module 4 Oct. 21-Dec. 20 (Includes Semester Exam Days)	Module 5 Jan. 6 – Feb. 5	Module 6 Feb. 6 –Feb. 28	Gr. 7 Module 5 Lessons 6-7 Feb. 27- Feb. 28	Module 7 Mar. 9 -April 24 TNReady April 13- May 8 Review after TNReady May 9-May 24
Integer Exponents & Scientific Notation	The Concept of Congruence	Similarity	Linear Equations	Examples of Functions from Geometry	Linear Functions		Introduction to Irrational Numbers Using Geometry
8.EE.A.1	8.G.A.1	8.G.A.2	8.EE.B.5	8.F.A.1	8.F.B.4	8.SP.B.4	8.NS.A.1
8.EE.A.3	8.G.A.3	8.G.A.3	8.EE.B.6	8.F.A.2	8.F.B.5		8.NS.A.2
8.EE.A.4	8.G.B.4	8.G.B.4	8.EE.C.7	8.F.A.3	8.SP.A.1		8.EE.A.2
	8.G.B.5	8.G.B.5	8.EE.C.8	8.G.C.7	8.SP.A.2		8.G.B.4
					8.SP.A.3		8.G.B.5
							8.G.B.6
							8.G.C.7
							After TNReady
							8.EE 1, 3-6, 8
							8.F 1-3
							8.G 2, 5, 7

■ Major Content

➤ Supporting Content



### Introduction

Destination 2025, Shelby County Schools’ 10-year strategic plan, is designed not only to improve the quality of public education, but also to create a more knowledgeable, productive workforce and ultimately benefit our entire community. **What will success look like?**



In order to achieve these ambitious goals, we must collectively work to provide our students with high quality, college and career ready aligned instruction. The Tennessee State Standards provide a common set of expectations for what students will know and be able to do at the end of a grade. The State of Tennessee provides two sets of standards, which include the Standards for Mathematical Content and The Standards for Mathematical Practice. The Content Standards set high expectations for all students to ensure that Tennessee graduates are prepared to meet the rigorous demands of mathematical understanding for college and career. The eight Standards for Mathematical Practice describe the varieties of expertise, habits of mind, and productive dispositions that educators seek to develop in all students. The Tennessee State Standards also represent three fundamental shifts in mathematics instruction: **focus, coherence and rigor**.

### Instructional Shifts for Mathematics



Throughout this curriculum map, you will see resources as well as links to tasks that will support you in ensuring that students are able to reach the demands of the standards in your classroom. In addition to the resources embedded in the map, there are some high-leverage resources around the content standards and mathematical practice standards that teachers should consistently access. For a full description of each, click on the links below.





### How to Use the Curriculum Map

#### Overview

An overview is provided for each quarter and includes the topics, focus standards, intended rigor of the standards and foundational skills needed for success of those standards.

Your curriculum map contains four columns that each highlight specific instructional components. Use the details below as a guide for information included in each column.

#### Tennessee State Standards

TN State Standards are located in the left column. Each content standard is identified as Major Content or Supporting Content. A key can be found at the bottom of the map.

#### Content

This section contains learning objectives based upon the TN State Standards. Best practices tell us that clearly communicating measurable objectives lead to greater student understanding. Additionally, essential questions are provided to guide student exploration and inquiry.

#### Instructional Support

District and web-based resources have been provided in the Instructional Support column. You will find a variety of instructional resources that align with the content standards. The additional resources provided should be used as needed for content support and scaffolding.

#### Vocabulary and Fluency

The inclusion of vocabulary serves as a resource for teacher planning and for building a common language across K-12 mathematics. One of the goals for Tennessee State Standards is to create a common language, and the expectation is that teachers will embed this language throughout their daily lessons. In order to aid your planning, we have also included a list of fluency activities for each lesson. It is expected that fluency practice will be a part of your daily instruction. (Note: Fluency practice is not intended to be speed drills, but rather an intentional sequence to support student automaticity. Conceptual understanding must underpin the work of fluency.)

#### Instructional Calendar

As a support to teachers and leaders, an instructional calendar is provided **as a guide**. Teachers should use this calendar for effective planning and pacing, and leaders should use this calendar to provide *support* for teachers. Due to variances in class schedules and differentiated support that may be needed for students' adjustment to the calendar may be required.



Grade 8 Quarter 2 Overview

Module 4: Linear Equations

The chart below includes the standards that will be addressed in this quarter, the type of rigor the standards address, and foundational skills needed for mastery of these standards. Consider using these foundational standards to address student gaps during intervention time as appropriate for students

Grade Level Standard	Type of Rigor	Foundational Standards
8.EE.5	Conceptual Understanding	7.RP.A.2
8.EE.6	Conceptual Understanding	7.RP.A.2, 7.G.A.1
➤ 8.EE.7	Procedural Fluency	7.G.A.1, 7.RP.A.2
8.EE.8	Conceptual Understanding, Procedural Fluency & Application	7.EE.4
➤ Indicates the Power Standard based on the 2017-18 TN Ready Assessment.		
<a href="#">Instructional Focus Document</a> – Grade 8		



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Quarter 2

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## Module 4 Linear Equations

### Grade 8 Pacing and Preparation Guide

(Allow approximately 9 weeks for instruction, review and assessment)

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
<p><b>Domain:</b> Expressions and Equations  <b>Cluster:</b> Analyze and solve linear equations and pairs of simultaneous linear equations.</p> <p>■ <b>8.EE.C.7:</b> Solve linear equations in one variable.</p> <p>■ <b>8.EE.C.7.a:</b> Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form <math>x = a</math>, <math>a = a</math>, or <math>a = b</math> results (where <math>a</math> and <math>b</math> are different numbers).</p> <p>■ <b>8.EE.C.7.b:</b> Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p>	<p><b>Topic A Objectives:</b>  <b>Essential Questions:</b></p> <ul style="list-style-type: none"> <li>Why is it important to know whether a linear equation has one solution, infinitely many solutions, or no solution?</li> </ul> <p><b>Lesson 1: (8.EE.C.7)</b></p> <ul style="list-style-type: none"> <li>Students write mathematical statements using symbols to represent numbers.</li> <li>Students know that written statements can be written as more than one correct mathematical sentence.</li> </ul>	<p><b>IF your students need to enhance their prior knowledge of linear expressions and equations, consider doing the following 7<sup>th</sup> Grade Teacher Toolbox lessons before starting Grade 8 Module 4.</b></p> <p><b>Lesson 14: Equivalent Linear Expressions (supports Module 4 Lesson 4)</b>  <b>Lesson 15: Writing Linear Expressions (supports Module 4 Lesson 1)</b>  <b>Lesson 16: Solve Problems with Equations (supports Module Lessons 4 &amp; 5)</b></p> <p><a href="#">How to Integrate Teacher Toolbox Lessons</a>  <b>Topic A: Writing and Solving Linear Equations</b></p> <p><b>Topic A Teacher Toolbox Alignment:</b>  <b>Lesson 13: Solve Linear Equations with Rational Coefficients</b>  <b>Lesson 14: Solutions of Linear Equations</b></p> <p><a href="#">How to Integrate Teacher Toolbox Lessons</a></p> <p>Lesson 1  Lesson 2 Omit</p>	<p><b>Vocabulary for Module 4: Topic A</b>  Horizontal Line, Linear Equation</p> <p><b>Familiar Terms and Symbols for Module 3:</b>  Coefficient, Equation, Like terms, Linear Expression, Solution, Term, Unit rate, Variable</p>



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<p><b>Domain:</b> Expressions and Equations  <b>Cluster:</b> Understand the connections between proportional relationships, lines, and linear equations.</p> <p>■ <b>8.EE.B.5:</b> Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.</p>	<p><b>Essential Questions:</b></p> <ul style="list-style-type: none"> <li>How are proportional relationships represented on a graph, a table and an equation?</li> <li>How do you compare different proportional relationships represented on graphs, tables and equations?</li> <li>What is the relationship between a unit rate and slope?</li> </ul> <p><b>Topic B Objectives: (All lessons cover 8.EE.B.5)</b></p> <p><b>Lesson 10:</b></p> <ul style="list-style-type: none"> <li>Students work with proportional relationships that involve average speed and constant speed in order to write a linear equation in two variables.</li> <li>Students use linear equations in two variables to answer questions about distance and time.</li> </ul> <p><b>Lesson 11:</b></p> <ul style="list-style-type: none"> <li>Students know the definition of constant rate in varied contexts as expressed using two variables where one is <math>t</math> representing a time interval.</li> <li>Students graph points on a coordinate plane related to constant rate problems.</li> </ul> <p><b>Lesson 12:</b></p> <ul style="list-style-type: none"> <li>Students use a table to find solutions to a given linear equation and plot the solutions on a coordinate plane.</li> </ul>	<p>Before beginning Module 4 Topic B, use some components of the following 7<sup>th</sup> Grade Teacher Toolbox lessons</p> <p><b>Lesson 11: Equations for Proportional Relationships</b></p> <p><b>Lesson 12: Problem Solving with Proportional Relationships</b></p> <p><a href="#">How to Integrate Teacher Toolbox Lessons</a></p> <p>Topic B: Linear Equations in Two Variables and Their Graphs</p> <p><b>Topic B Teacher Toolbox Alignment:</b></p> <p><b>Lesson 11: Represent Proportional Relationships</b></p> <p><a href="#">How to Integrate Teacher Toolbox Lessons</a></p> <p>Lesson 10 Lesson 11 Lesson 12</p> <p>Continued below</p>	<p><b>Vocabulary for Module 4: Topic B</b> Average Speed, Constant Speed, Standard Form of a Linear Equation</p> <p><b>Familiar Terms and Symbols for Module 3:</b> Coefficient, Equation, Like terms, Linear Expression, Solution, Term, Unit rate, Variable</p>





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➤ Supporting Content





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Grade 8

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
<p><b>Domain:</b> Expressions and Equations  <b>Cluster:</b> Analyze and solve linear equations and systems of two linear equations.</p> <p>■ <b>8.EE.C.8</b> Analyze and solve systems of two linear equations.            a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.</p>	<p><b>Lesson 25: (8.EE.C.8.a)</b></p> <ul style="list-style-type: none"> <li>• Students sketch the graphs of two linear equations and find the point of intersection.</li> <li>• Students identify the point of intersection of the two lines as the solution to the system.</li> <li>• Students verify by computation that the point of intersection is a solution to each of the equations in the system.</li> </ul> <p><b>Lesson 26: (8.EE.B.8)</b></p> <ul style="list-style-type: none"> <li>• Students know that when a system of linear equations has no solution (i.e., no point of intersection of the lines), then the lines are parallel.</li> </ul> <p><b>Lesson 27: (8.EE.C.8.a)</b></p> <ul style="list-style-type: none"> <li>• Students know that since two equations in the form <math>ax + by = c</math> and <math>x + b'y = c'</math>, when <math>a</math>, <math>b</math>, and <math>c</math> are nonzero numbers, graph as the same line when <math>a'/a = b'/b = c'/c</math>, then the system of linear equations has infinitely many solutions.</li> <li>• Students know a strategy for solving a system of linear equations algebraically.</li> </ul>	<p>Topic D, cont'd</p> <p><b>Lesson 25</b>  <b>Lesson 26</b>  <b>Lesson 27</b></p> <p>Continued below</p>	<p><b>Vocabulary for Module 4: Topic D</b>            Solution to a System of Linear Equations, System of Linear Equations, Vertical Line, X-Intercept, Y-Intercept</p> <p><b>Familiar Terms and Symbols for Module 3:</b>            Coefficient, Equation, Like terms, Linear Expression, Solution, Term, Unit rate, Variable</p>



# Curriculum and Instruction – Mathematics

Quarter 2

Grade 8

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
<p><b>Domain:</b> Expressions and Equations  <b>Cluster:</b> Analyze and solve linear equations and systems of two linear equations.</p> <p>■ <b>8.EE.C.8</b> Analyze and solve systems of two linear equations.  <b>b.</b> Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, <math>3x + 2y = 5</math> and <math>3x + 2y = 6</math> have no solution because <math>3x + 2y</math> cannot simultaneously be 5 and 6.  <b>c.</b> Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.</p>	<p><b>Lesson 28: (8.EE.C.8.b)</b></p> <ul style="list-style-type: none"> <li>Students learn the elimination method for solving a system of linear equations.</li> <li>Students use properties of rational numbers to find a solution to a system, if it exists, through computation using substitution and elimination methods.</li> </ul> <p><b>Lesson 29: (8.EE.C.8.b, 8.EE.C.8.c)</b></p> <ul style="list-style-type: none"> <li>Students write word problems into systems of linear equations.</li> <li>Students solve systems of linear equations using elimination and substitution methods.</li> </ul>	<p>Topic D, cont'd  <b>Lesson 28</b>  <b>Lesson 29</b>  <b>Lesson 30 Omit</b>  <b>Lesson 31 Omit</b></p> <p><a href="#">Optional Quiz for M4 Topic D</a></p> <p><b>Additional Resources:</b> <i>These optional resources may be used for extension, enrichment and/or additional practice, as needed</i></p> <p><a href="#">Illustrative Math: Comparing Speeds in Graphs and Equations 8.EE.B.5</a>  <a href="#">Illustrative Math: Coffee by the Pound 8.EE.B.5</a>  <a href="#">Illustrative Math: 8.EE.C.8</a></p> <p><b>End-of-Module 4 Assessment &amp; Review of Assessment (Complete by 12/19/19)</b></p> <p><a href="#">Optional End of Module 4 Assessment</a></p>	<p><b>Vocabulary for Module 4: Topic D</b>  Solution to a System of Linear Equations, System of Linear Equations, Vertical Line, X-Intercept, Y-Intercept</p> <p><b>Familiar Terms and Symbols for Module 3:</b>  Coefficient, Equation, Like terms, Linear Expression, Solution, Term, Unit rate, Variable</p>

DRAFT

■ Major Content

➤ Supporting Content



# Curriculum and Instruction – Mathematics

Quarter 2

Grade 8

## RESOURCE TOOLKIT

The Resource Toolkit provides additional support for comprehension and mastery of grade-level skills and concepts. While some of these resources are imbedded in the map, the use of these categorized materials can assist educators with maximizing their instructional practices to meet the needs of all students.

<p><b>Textbook Resources</b>  <a href="http://www.greatminds.org">www.greatminds.org</a>  <a href="#">Eureka Math Grade 8 Remediation Guides</a>  <a href="#">Remediation Tools</a></p>	<p><b>Standards Support</b>  <a href="#">TNReady Math Standards</a>  <a href="#">Grade 8 Instructional Focus Document</a>  <a href="#">Achieve the Core</a>  <a href="#">Edutoolbox</a></p>	<p><b>Videos</b>  <a href="#">Khan Academy</a>  <a href="#">Learn Zillion</a></p>
<p><b>Calculator Activities</b>  <a href="#">TI-73 Activities</a>  <a href="#">CASIO Activities</a>  <a href="#">TI-Inspire for Middle Grades</a></p>	<p><b>Interactive Manipulatives</b>  <a href="#">Glencoe Virtual Manipulatives</a>  <a href="#">National Library of Interactive Manipulatives</a></p> <p><b>SEL Resources</b>  <a href="#">SEL Connections with Math Practices</a>  <a href="#">SEL Core Competencies</a>  <a href="#">The Collaborative for Academic, Social, and Emotional Learning (CASEL)</a></p>	<p><b>Additional Sites</b>  <a href="#">Embarc Online</a>  <a href="#">PBS: Grades 6-8 Lesson Plans</a>  <a href="#">Grade 8 Flip Book</a>            (This book contains valuable resources that help develop the intent, the understanding and the implementation of the state standards.)  <a href="https://academy.act.org/">https://academy.act.org/</a>  <a href="https://opened.com">https://opened.com</a></p>



# Curriculum and Instruction – Mathematics

Quarter 2

Grade 8

## October 2019

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
	30	1	2	3	4	<b>Flex Day Options Include:</b>  <b>Standard-</b> Suggested standard(s) to review for the day (*-denotes a Power Standard)  <b>Pacing</b> – Use this time to adjust instruction to stay on pace.  <b>Other-</b> This includes assessments, review, re-teaching, etc.
	7	8	9	10	11 <i>½ day students Quarter 1 Ends</i>	
	14	15	16	17	18	
<i>Fall Break</i>						
	21	21	23	24	25	
Module 4 Topic A	Quarter 2 Begins Module 4 Topic A Lesson 1	Module 4 Topic A Lesson 3	Module 4 Topic A Lesson 4	Module 4 Topic A Lesson 6	<b>Flex Day Options</b> 8. EE.C.7* 8.EE.C.7a 8. EE.C.7b <b>Pacing</b> <b>Other</b>	
Module 4 Topic A Topic B	Module 4 Topic A Lesson 7	Module 4 Topic A Lesson 8	Module 4 Topic A <a href="#">Lessons 5 &amp; 9, combined</a>	Module 4 Topic B Lesson 10  <i>Halloween</i>	1	

Note: Please use this suggested pacing as a guide. It is understood that teachers may be up to 1 week ahead or 1 week behind depending on their individual class needs.

■ Major Content

➤ Supporting Content





# Curriculum and Instruction – Mathematics

Quarter 2

Grade 8

## November 2019

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
Module 4 Topic B					<b>1</b> <i>Flex Day Options</i> 8.EE.C.7a* 8.EE.C.7b* Pacing Other	<b>Flex Day Options Include:</b>  <b>Standard-</b> Suggested standard(s) to review for the day (*-denotes a Power Standard)  <b>Pacing</b> – Use this time to adjust instruction to stay on pace.  <b>Other-</b> This includes assessments, review, re-teaching, etc.
Module 4 Topic B	<b>4</b> Module 4 Topic B Lesson 11	<b>5</b> Module 4 Topic B Lesson 12	<b>6</b> Module 4 Topic B Lesson 13	<b>7</b> Module 4 Topic B Lesson 14	<b>8</b> <i>1/2 day students</i> <i>Flex Day Options</i> 8.EE.B.5 Pacing Other	
Module 4 Topic C	<b>11</b> <i>Veteran's Day</i>	<b>12</b> <i>Mid-Module 4 Assessment &amp; Review of Assessment</i>	<b>13</b> Module 4 Topic C Lesson 15	<b>14</b> Module 4 Topic C Lesson 16	<b>15</b> Module 4 Topic C Lesson 17	
Module 4 Topic C	<b>18</b> Module 4 Topic C Lesson 18	<b>19</b> Module 4 Topic C Lesson 19	<b>20</b> Module 4 Topic C Lesson 20	<b>21</b> Module 4 Topic C Lesson 21	<b>22</b> <i>Flex Day Options</i> 8.EE.B.6 Pacing Other	
	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	
Thanksgiving Break						
	<b>PD FLEX DAY</b>	<b>PD FLEX DAY</b>				

Note: Please use this suggested pacing as a guide. It is understood that teachers may be up to 1 week ahead or 1 week behind depending on their individual class needs.



# Curriculum and Instruction – Mathematics

Quarter 2

Grade 8

## December 2019

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
Module 4 Topic C Topic D	<b>2</b> Module 4 Topic C Lesson 22	<b>3</b> Module 4 Topic C Lesson 23	<b>4</b> Module 4 Topic D Lesson 24	<b>5</b> Module 4 Topic D Lesson 25	<b>6</b> <i>Flex Day Options</i> 8.EE.B.5 8.EE.B.6 Pacing Other	<b>Flex Day Options Include:</b>  <b>Standard-</b> Suggested standard(s) to review for the day (*-denotes a Power Standard)  <b>Pacing</b> – Use this time to adjust instruction to stay on pace.  <b>Other-</b> This includes assessments, review, re-teaching, etc.
Module 4 Topic D	<b>9</b> Module 4 Topic D Lesson 26 Start preparing for Module 5	<b>10</b> Module 4 Topic D Lesson 27	<b>11</b> Module 4 Topic D Lesson 28	<b>12</b> Module 4 Topic D Lesson 29	<b>13</b> <i>Flex Day Options</i> 8.EE.C.8 Pacing Other	
	<b>16</b> End-of-Module 4 Assessment & Review of Assessment	<b>17</b> End-of-Module 4 Assessment & Review of Assessment	<b>18</b>	<b>19</b>	<b>20</b> <i>½ day students Quarter 2 Ends</i> <i>Flex Day Options</i> 8.EE.C.8 Pacing Other	
	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	
Winter Break						
	<b>30</b>	<b>31</b>	<b>1</b>	<b>2</b>	<b>3</b>	
Winter Break						

Note: Please use this suggested pacing as a guide. It is understood that teachers may be up to 1 week ahead or 1 week behind depending on their individual class needs.

■ Major Content

➤ Supporting Content