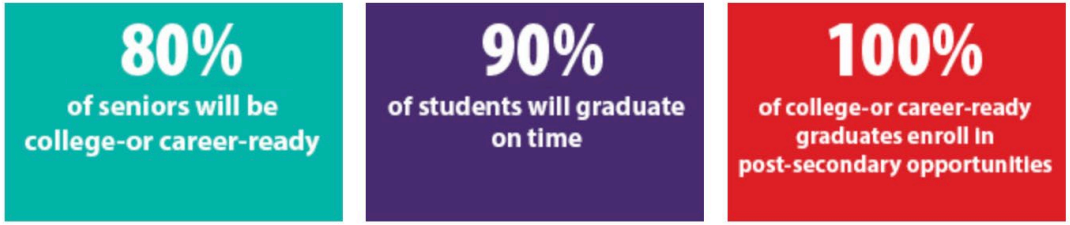
Mathematics
Grade 8: Year at a Glance
2019-2020

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 ■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**.

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.

Tennessee Mathematics Content Standards

Standards for Mathematical Practice

Literacy Sckills for Mathematical Proficency

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.

■Major Content ➢ Supporting Content ■Major Content ➢ Supporting Content

Grade 8 Quarter 3 Overview

Module 5: Examples of Functions in Geometry
Module 6: Linear Functions
Module 7: Intro to Irrational Numbers Using Geometry

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.F.A.1	Conceptual Understanding	7.RP.A.2
8.F.A.2	Conceptual Understanding	7.RP.A.2
8.F.A.3	Conceptual Understanding	
8.F.B.4	Conceptual Understanding & Procedural Fluency	7.RP.A.2
8.F.B.5	Conceptual Understanding	
8.G.C.7	Conceptual Understanding & Application	
8.SP.A.1	Conceptual Understanding	6.NS.8
8.SP.A.2	Conceptual Understanding	
8.SP.A.3	Conceptual Understanding & Application	
8.SP.A.4	Conceptual Understanding, Procedural Fluency & Application	7.SP.C.5, 7.SP.C.6
8.NS.A.1	Conceptual Understanding & Procedural Fluency	7.NS.A.2
8.NS.A.2	Conceptual Understanding	
8.EE.A.2	Conceptual Understanding & Procedural Fluency	6.EE.B.5, 6.EE.B.7, 6.EE.B.8
Indicates the Power Standard based on the 2017-18 TN Ready Assessment.		
Instructional Focus Document – **Grade 8**		

Module 5 Examples of Functions in Geometry

[Grade 8 Pacing and Preparation Guide]

(Allow approximately 4 weeks for instruction, review and assessment)

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Functions **Cluster**: Define, evaluate and compare functions. ■ **8.F.A.1** Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in 8th grade.) ■ **8.F.A.2** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and another linear function represented by an algebraic expression, determine which function has the greater rate of change. ■ **8.F.A.3** Know and interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.	**Essential Questions:** • How would you determine that a relationship is a function? • What are some characteristics of a (linear) (nonlinear) function? • How would you interpret the features (e.g. rate of change, initial value, increasing/decreasing) of a function, in a real world context? **Topic A Objectives:** **Lesson 2 (8.F.A.1)** • Students refine their understanding of the definition of a function. • Students recognize that some, but not all, functions can be described by an equation between two variables. **Lesson 3 (8.F.A.3)** • Students realize that linear equations of the form $y = mx + b$ can be seen as rules defining functions (appropriately called linear functions). • Students explore examples of linear functions. **Lesson 4 (8.F.A.1)** • Students classify functions as either discrete or not discrete. **Lesson 5 (8.F.A.1, 8.F.A.3)** • Students define the graph of a numerical function to be the set of all points (x, y) with xx an input of the function and y its matching output. • Students realize that if a numerical function can be described by an equation, then the graph of the function precisely matches the graph of the equation.	**Topic A: Functions** **Topic A Teacher Toolbox Alignment:** • **Lesson 6: *Understand Functions*** (supports Module 5 Lesson 2) • **Lesson 7: *Compare Functions*** (supports Module 5 Lesson 7) • **Lesson 8: *Understand Linear Functions*** (also supports Module 5 Lesson 7) [Integrating Teacher Toolbox Lessons] **Lesson 1 Omit** In place of Module 5 Lesson 1 it is suggested that teachers use **Teacher Toolbox Lesson 6: *Understand Functions*** before going to Module 5 Lesson 2 **Lesson 2** **Lesson 3** **Lesson 4 Optional** (Exercises 1-3 & Problem Set 1-4 are good items to complete; however, omit questions on discrete/non-discrete because this is not a part of the standard) **Lesson 5** **Continued below**	**Vocabulary for Module 5: Topic A** Equation Form of a Linear Function, Function, Graph of a Linear Function **Familiar Terms and Symbols for Module 5** Area, Linear equation, Nonlinear equation, Rate of change, Solids, Volume

Curriculum and Instruction – Mathematics

Quarter 3 Grade 8

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Functions **Cluster**: Define, evaluate and compare functions. ■ **8.F.A.1** Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in 8th grade.) ■ **8.F.A.2** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and another linear function represented by an algebraic expression, determine which function has the greater rate of change. ■ **8.F.A.3** Know and interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.	**Lesson 6 (8.F.A.1, 8.F.A.3)** • Students deepen their understanding of linear functions. **Lesson 7 (8.F.A.2, 8.F.A.3)** • Students compare the properties of two functions that are represented in different ways via tables, graphs, equations, or written descriptions. • Students use rate of change to compare linear functions. **Lesson 8 (8.F.A.1, 8.F.A.3)** • Students examine the average rate of change for nonlinear function over various intervals and verify that these values are not constant.	**Topic A, cont'd.** **Lesson 6** **Lesson 7** **Lesson 8** **Optional Quiz for M5 Topic A (1/22/20)** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Foxes and Rabbits 8.F.1 Illustrative Math: Function Rules 8.F.1 Illustrative Math: Battery Charging 8.F.A.2 Illustrative Math: Intro to Linear Functions 8.F.3 **Reminder:** *It is recommended that teachers begin preparing for Module 6 by 1/27/20.*	**Vocabulary for Module 5 Topic A** Equation Form of a Linear Function, Function, Graph of a Linear Function **Familiar Terms and Symbols for Module 5** Area, Linear equation, Nonlinear equation, Rate of change, Solids, Volume

Curriculum and Instruction – Mathematics

Quarter 3 Grade 8

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Geometry **Cluster:** Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres ➢ **8.G.C.7 (formerly 8.G.C.9)** Know and understand the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.	**Essential Questions:** • What are the similarities and differences between the formulas for the volume of cylinders, cones, and spheres? • How do the volume formulas for cones, cylinders and cylinders relate to functions? **Topic B Objectives:** **Lesson 9**: **(8.G.C.7)** • Students write rules to express functions related to geometry. • Students review what they know about volume with respect to rectangular prisms and further develop their conceptual understanding of volume by comparing the liquid contained within a solid to the volume of a standard rectangular prism (i.e., a prism with base area equal to one). **Lesson 10: (8.G.C.7)** • Students know the volume formulas for cones and cylinders. • Students apply the formulas for volume to real-world and mathematical problems. **Lesson 11 (8.G.C.7)** • Students know the volume formula for a sphere as it relates to a right circular cylinder with the same diameter and height. • Students apply the formula for the volume of a sphere to real-world and mathematical problems.	**Topic B: Volume** **Topic B Teacher Toolbox Alignment:** • **Lesson 26: *Understand Volume of Cylinders, Cones and Spheres*** Integrating Teacher Toolbox Lessons **Lesson 9** **Lesson 10** **Lesson 11** **End of Module 5 Assessment & Review of Assessment:** ***(Complete by 2/6/20)*** **Optional End-of-Module 5 Assessment** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Comparing Snow Cones 8.G.C.7 Illustrative Math Flower Vases 8.G.C.7	**Vocabulary for Module 5** Cone, Cylinder, Lateral Edge and Face of a Prism, Lateral Edge and Face of a Pyramid Solid Sphere or Ball Sphere, Sphere **Familiar Terms and Symbols for Module 5** Area, Linear equation, Nonlinear equation, Rate of change, Solids, Volume

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Module 6 Linear Functions **Grade 8 Pacing and Preparation Guide** (Allow approximately 4 weeks for instruction, review and assessment)			
Domain: Expressions and Equations **Cluster:** Understand the connections between proportional relationships, lines, and linear equations. ■ **8.F.B.4** Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. ■ **8.F.B.5** Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	**Essential Question(s):** • How can patterns, relations, and functions be used as tools to best describe and help explain real-life relationships? **Topic A Objectives** **Lesson 1 (8.F.B.4)** • Students determine a linear function given a verbal description of a linear relationship between two quantities. • Students interpret linear functions based on the context of a problem. • Students sketch the graph of a linear function by constructing a table of values, plotting points, and connecting points by a line. **Lesson 2 (8.F.B.4, 8.F.B.5)** • Students interpret the constant rate of change and initial value of a line in context. • Students interpret slope as rate of change and relate slope to the steepness of a line and the sign of the slope, indicating that a linear function is increasing if the slope is positive and decreasing if the slope is negative.	**Topic A: Linear Functions** **Topic A Teacher Toolbox Alignment** • **Lesson 9: *Analyze Linear Functions*** • **Lesson 10: *Graphs of Functional Relationships*** Integrating Teacher Toolbox Lessons **Lesson 1** **Lesson 2** **Continued below**	**Familiar Terms and Symbols for Module 6** Categorical variable Intercept or initial value Numerical variable Slope

Curriculum and Instruction – Mathematics

Quarter 3 Grade 8

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Expressions and Equations **Cluster:** Understand the connections between proportional relationships, lines, and linear equations. ■ **8.F.B.4** Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. ■ **8.F.B.5** Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	**Lesson 3 (8.F.B.4, 8.F.B.5)** • Students graph a line specified by a linear function. • Students graph a line specified by an initial value and a rate of change of a function and construct the linear function by interpreting the graph. • Students graph a line specified by two points of a linear relationship and provide the linear function. **Lesson 4 (8.F.B.5)** • Students describe qualitatively the functional relationship between two types of quantities by analyzing a graph. • Students sketch a graph that exhibits the qualitative features of a function based on a verbal description. **Lesson 5 (8.F.B.5)** • Students qualitatively describe the functional relationship between two types of quantities by analyzing a graph. • Students sketch a graph that exhibits the qualitative features of linear and nonlinear functions based on a verbal description.	**Topic A, cont'd.** **Lesson 3** **Lessons 4 & 5, combined** Suggestions for combining • Lesson 4- Use Exit Ticket and Problem Set items to use as guided practice • Lesson 5 – Problem Set #1, 4-7 for independent work and Exit Ticket for assessment **Optional Quiz for M6 Topic A** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: 8.F.4 Tasks Illustrative Math: Chicken and Steak, Variation 1 8.F.B.4 Illustrative Math: Chicken and Steak, Variation 2	**Familiar Terms and Symbols for Module 6** Categorical variable Intercept or initial value Numerical variable Slope

Curriculum and Instruction – Mathematics

Quarter 3 — Grade 8

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Statistics and Probability **Cluster:** Investigate patterns of association in bivariate data. ➢ **8.SP.A.1** Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. ➢ **8.SP.A.2** Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	**Essential Question(s):** • What is the meaning of the slope and intercept of a line, in the context of the situation? • How can mathematics be used to provide models that helps us interpret data and make predictions? **Topic B Objectives:** **Lesson 6: (8.SP.A.1)** • Students construct scatter plots. Students use scatter plots to investigate relationships. • Students understand that a trend in a scatter plot does not establish cause-and-effect. **Lesson 7**: **(8.SP.A.1)** • Students distinguish linear patterns from nonlinear patterns based on scatter plots. • Students describe positive and negative trends in a scatter plot. • Students identify and describe unusual features in scatter plots, such as clusters and outliers. **Lesson 8**: **(8.SP.A.2)** • Students informally fit a straight line to data displayed in a scatter plot. Students make predictions based on the graph of a line that has been fit to data. **Lesson 9: (8.SP.A.2)** • Students informally fit a straight line to data displayed in a scatter plot. • Students determine the equation of a line fit to data. • Students make predictions based on the equation of a line fit to data.	**Topic B: Bivariate Numerical Data** **Topic B Teacher Toolbox Alignment:** • **Lesson 28: *Scatter Plots*** • **Lesson 29: *Scatter Plots and Linear Models*** Integrating Teacher Toolbox Lessons **Lesson 6** **Lesson 7** **Lessons 8 & 9, combined** Suggestions for combining, • Use Problem Set and Exit Ticket items for guided and independent practice Optional Quiz for M6 Topic B **Mid-Module 6 Assessment & Review of Assessment or Optional Mid-Module Assessment** ***(Complete by 2/25/20)*** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math Task: Hand Span & Height 8.SP.1 Illustrative Math Task: Texting & Grades I 8.SP.1 Illustrative Math: Laptop Battery Charge 8.SP.2 **Reminder:** *It is recommended that teachers begin preparing for Module 7 by 2/24/20.*	**Vocabulary Module 6 Topic B** Scatter plots **Familiar Terms and Symbols for Module 6** Categorical variable Intercept or initial value Numerical variable Slope

Curriculum and Instruction – Mathematics

Quarter 3 Grade 8

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Statistics and Probability **Cluster:** Investigate patterns of association in bivariate data. ➢ **8.SP.A.1** Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. ➢ **8.SP.A.2** Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line. ➢ **8.SP.A.3** Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.	**Essential Question(s):** What kind of patterns can be found in bivariate data? **Topic C Objectives:** **Lesson 10 (8.SP.A.3)** • Students identify situations where it is reasonable to use a linear function to model the relationship between two numerical variables. • Students interpret slope and the initial value in a data context. **Lesson 11 (8.SP.A.1, 8.SP.A.2, 8.SP.A.3)** • Students recognize and justify that a linear model can be used to fit data. • Students interpret the slope of a linear model to answer questions or to solve a problem. **Lesson 12 (8.SP.A.1, 8.SP.A.2, 8.SP.A.3)** • Students give verbal descriptions of how y changes as x changes given the graph of a nonlinear function. • Students draw nonlinear functions that are consistent with a verbal description of a nonlinear relationship.	**Topic C Linear and Nonlinear Models** **Topic C Teacher Toolbox Alignment:** • **Lesson 30: *Solve Problems with Linear Models*** Integrating Teacher Toolbox Lessons **Lesson 10** **Lesson 11** **Lesson 12 (Optional)** ***Omit Lessons 13-14 because they address a standard that is no longer an 8th grade TN Math State Standard.*** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice.* Illustrative Math: Animal Brains 8.SP.A.1, 8.SP.A.2 Illustrative Math: Laptop Battery Charge 8.SP.A.2 Illustrative Math Task: US Airports, Assessment Variation 8.SP.3 Continued below	**Vocabulary Module 6 Topic C** Association Bivariate Data Set **Familiar Terms and Symbols for Module 6** Categorical variable Intercept or initial value Numerical variable Slope

Curriculum and Instruction – Mathematics

Quarter 3 Grade 8

Domain: Statistics and Probability **Cluster:** Investigate chance processes and develop, use and evaluate probability models. ➢ **8.SP.A.4** (**New to 8th grade**) Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.	**Grade 7 Module 5 Topic A (Addresses 8.SP.A.4)** **Lesson 6** • Given a description of a chance experiment that can be thought of as being performed in two or more stages, students use tree diagrams to organize and represent the outcomes in the sample space. • Students calculate probabilities of compound events. **Lesson 7** • Students will calculate probabilities of compound events.	**Topic C, cont'd** **Grade 7 Module 5 Topic A (Addresses 8.SP.A.4)** **Lesson 6** **Lesson 7** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice.* Illustrative Math: Red, Green or Blue? 8.SP.A.4 Illustrative Math: Waiting Times 8.SP.A.4 Illustrative Math: Sitting Across from Each Other 8.SP.A.4 **End of Module 6 Assessment & Review of Assessment: Omit #2** ***(Complete by 3/5/20)*** ***or*** Optional Quiz for M6 Topic C Please include items to assess TN Math 8.SP.A.4	**Vocabulary Module 6 Topic C** Association Bivariate Data Set **Familiar Terms and Symbols for Module 6** Categorical variable Intercept or initial value Numerical variable Slope

Curriculum and Instruction – Mathematics

Quarter 3 **Grade 8**

Module 7 Intro to Irrational Numbers Using Geometry

[Grade 8 Pacing and Preparation Guide]

(Allow approximately 1 week for instruction, review and assessment)

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Number System **Cluster:** Know that there are numbers that are not rational and approximate them by rational numbers. ➢ **8.NS.A.1** Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually or terminates, and convert a decimal expansion which repeats eventually or terminates into a rational number. ➢ **8.NS.A.2** Use rational approximations of irrational numbers to compare the size of irrational numbers locating them approximately on a number line diagram. Estimate the value of irrational expressions such as π^2. For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations. **Domain**: Expressions and Equations **Cluster:** Work with radicals and integer exponents. ■ **8.EE.A.2** Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.	**Essential Question(s):** • How do radicals and exponents influence one's understanding of other content, such as geometry and science? • What is the relationship between squares and square roots? Cube and cube roots? **Topic A Objectives:** **Lesson 1 (8.NS.A.2)** • Students know that they can estimate the length of a side of a right triangle as a number between two integers and identify the integer to which the length is closest. **Lesson 2 (8.NS.A.2, 8.EE.A.2)** • Students are introduced to the notation for square roots. • Students approximate the location of square roots of whole numbers on the number line. **Lesson 3 (8.NS.A.2)** • Students know that the positive square root and the cube root exist for all positive numbers and both a square root of a number and a cube root of a number are unique. • Students solve simple equations that require them to find the square root or cube root of a number. **Lesson 5 (8.EE.A.2)** • Students find the positive solutions to equations algebraically equivalent to equations of the form $x^2=p$ and $x^3=p$.	**Topic A: Square and Cube Roots** **Topic A Teacher Toolbox Alignment:** • **Lesson 2: *Square Roots and Cube Roots*** [Integrating Teacher Toolbox Lessons] **Lesson 1** (During this lesson it may be helpful to work with students on approximating square and cube roots of values that are not perfect squares or perfect cubes. One suggested resource can be found here.) **Lesson 2** **Lesson 3** (For Lesson 3 it is suggested to only do Exercises 1-6, Exit Ticket #1-2 and Problem Set #1-4 & 7-9) **Lesson 4 Omit** **Lesson 5** [Optional Quiz for Module 7 Topic A] **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Formative Assessment items for 8.EE.A.2 Illustrative Math Tasks for 8.NS.1 Illustrative Math Tasks for 8.NS.2	**Vocabulary for Module 7 Topic A** Cube Root Decimal Expansion Irrational Number Perfect Square Rational Approximation Real Number Square Root of a Number **Familiar Terms and Symbols for Module 7** Decimal Expansion Finite Decimals Number Line Rate of Change Rational Number Volume

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

Curriculum and Instruction – Mathematics

Quarter 3 — Grade 8

January 2020

Module & Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
			1	2	3	**Flex Day Options Include:** ***Standard***- Suggested standard(s) to review for the day (*-denotes a Power Standard) ***Pacing*** – Use this time to adjust instruction to stay on pace. ***Other***- This includes assessments, review, re-teaching, etc.
			Winter Break			
Module 4 Recap	6 *Quarter 3 begins* Recap any Module 4 lessons as needed	7 Recap any Module 4 lessons as needed	8 Recap any Module 4 lessons as needed	9 Recap any Module 4 lessons as needed	10 Flex Day Options **8.EE.C.5** **8.EE.C.6** **8.EE.C.7** **8.EE.C.8** **Pacing** **Other**	
Module 5 Topic A	13 Module 5 Topic A TT Lesson 6	14 Module 5 Topic A TT Lesson 6	15 Module 5 Topic A Lesson 2	16 Module 5 Topic A Lesson 3	17 *½ day students* Flex Day Options **8.F.A.1*** **8.F.A.3** **Pacing** **Other**	
Module 5 Topic A	20 ***Martin Luther King Jr. Day***	21 Module 5 Topic A Lesson 4	22 Module 5 Topic A Lesson 5	23 Module 5 Topic A Lesson 6	24 Module 5 Topic A Lesson 7	
Module 5 Topics A & B	27 Module 5 Topic A Lesson 8 **Begin Prepping for Module 6**	28 Module 5 Topic A Quiz	29 Module 5 Topic A Quiz	30 Module 5 Topic B Lesson 9	31 Flex Day Options **8.F.A.1***, **8.F.A.2**, **8.F.A.3** **Pacing** **Other**	

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 3 **Grade 8**

February 2020

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
Module 5 Topic B	**3** Module 5 Topic B Lesson 10	**4** Module 5 Topic B Lesson 11	**5** **End of Module 5 Assessment & Review of Assessment**	**6** **End of Module 5 Assessment & Review of Assessment**	**7** Flex Day Options **8.F.B.2** **8.G.C.7*** **Pacing** **Other**	**Flex Day Options Include:** ***Standard***- Suggested standard(s) to review for the day (*-denotes a Power Standard) ***Pacing*** – Use this time to adjust instruction to stay on pace. ***Other***- This includes assessments, review, re-teaching, etc.
Module 6 Topic A	**10** Module 6 Topic A Lesson 1	**11** Module 6 Topic A Lesson 2	**12** Module 6 Topic A Lesson 3	**13** *Parent Teacher Conferences* Module 6 Topic A Lessons 4-5, combined	**14** *1/2 day students* Flex Day Options **8.F.B.4*** **8.F.B.5***, **Pacing** **Other**	
Module 6 Topic B	**17** **PD FLEX DAY** ~~President's Day~~	**18** Module 6 Topic B Lesson 6	**19** Module 6 Topic B Lesson 7	**20** Module 6 Topic B Lessons 8-9, combined	**21** Module 6 Topic B Lessons 8-9, combined	
Module 6 Topic C	**24** **Mid-Module 6 Assessment & Review of Assessment** **Begin Prepping for Module 7**	**25** **Mid-Module 6 Assessment & Review of Assessment**	**26** Module 6 Topic C Lesson 10	**27** Module 6 Topic C Lesson 11	**28** Flex Day Options **8.F.B.4*** **8.F.B.5*** **8.SP.A.1** **Pacing** **Other**	

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 3 **Grade 8**

March 2020

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
Module 6 Topic C	**2** Gr. 7 Module 5 Lesson 6	**3** Gr. 7 Module 5 Lesson 7	**4** **Module 6 Topic C Assessment or End of Module 6 Assessment (omit #2)**	**5** **Module 6 Topic C Assessment or End of Module 6 Assessment (omit #2)**	**6** Flex Day Options **8. SP.A.2** **8.SP.A.3** **Pacing** **Other**	**Flex Day Options Include:** ***Standard-*** Suggested standard(s) to review for the day (*-denotes a Power Standard) ***Pacing*** – Use this time to adjust instruction to stay on pace. ***Other***- This includes assessments, review, re-teaching, etc.
Module 7 Topic A	**9** Module 7 Topic A Lesson 1	**10** Module 7 Topic A Lesson 2	**11** Module 7 Topic A Lesson 3	**12** Module 7 Topic A Lesson 5	**13** *Quarter 3 Ends* Flex Day Options **8.NS.A.1*** **8.NS.A.2** **8.EE.A.2*** **Pacing** **Other**	
	16	**17**	**18**	**19**	**20**	
	Spring Break					
	23 *Quarter 4 begins*	**24**	**25**	**26**	**27**	
	30	**31**	1	2	3	

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.