



# Curriculum and Instruction – Mathematics

Quarter 4

Algebra I

## Mathematics Algebra I: Year at a Glance 2018 - 2019

Q1		Q2		Q3		Q4	
Module 1 Aug. 6 – Oct. 5		Module 3 Oct. 15 - Dec. 19		Module 4 Jan. 7 – Mar. 8		Modules 2 and 5 Mar. 18 – May 24 TN Ready Testing	
Module 1 Relationships Between Quantities and Reasoning with Equations and Their Graphs		Module 3 Linear and Exponential Functions		Module 4 Polynomials and Quadratic Expressions, Equations, and Functions		Modules 2 Descriptive Statistics Module 5 A Synthesis of Modeling with Equations and Functions	
A1. N.Q.A.1	A1.A.REI. C.4*	A1. A. SSE. B.3	A1. F.IF.C.8*	A1. A. SSE. A.1	A1. F.IF.C.6*	A1. N.Q.A.2	A1. S.ID.A.1
A1. N.Q.A.2	A1.A.REI. D.5*	A1. A. SSE. B.3c*	A1. F.BF.A.1	A1. A. SSE. A.2	A1. F.IF.C.7*	A1. N.Q.A.3	A1. S.ID.A.2
A1. N.Q.A.3	A1.A.REI. D.7*	A1. A. CED.A.1	A1. F.BF.A.1a	A1. A. SSE. B.3	A1. F.IF.C.8*	A1. A. CED.A.1	A1. S.ID.A.3
A1. A. APR.A.1		A1.A.REI. D.6*	A1. F.BF.B.2*	A1. A. APR.A.1	A1. F.BF.B.2	A1. A. CED.A.2	A1. S.ID.B.4
A1. A. CED.A.1		A1. F.IF.A.1	A1. F.LE.A.1a	A1. A. APR.B.2*		A1. F.IF.B.3*	A1. S.ID.B.4a
A1. A. CED.A.2		A1. F.IF.A.2	A1. F.LE.A.2	A1. A. REI.B.3*		A1. F.IF.B.4*	A1. S.ID.B.4b*
A1. A. CED.A.3		A1. F.IF.B.3*	A1. F.LE.A.3	A1. A. CED.A.1		A1. F.IF.B.5*	A1. S.ID.C.5
A1. A. CED.A.4		A1. F.IF.B.4*	A1. F.LE.B.4*	A1. A. CED.A.2		A1. F.BF.A.1	A1. S.ID.C.6
A1. A. SSE. A.1		A1. F.IF.B.5*		A1.A.REI. D.6*		A1. F.LE.A.1	A1. S.ID.C.7
A1. A. SSE. A.2		A1. F.IF.B.6*		A1. F.IF.B.3*		A1. F.LE.A.1b	
A1. A. REI.A.1		A1. F.IF.C.6a*		A1. F.IF.B.4*		A1. F.LE.A.1c	
A1.A.REI.B. 2*		A1. F.IF.C.6b*		A1. F.IF.B.5*		A1. F.LE.A.2	

Key:

Major Content	Supporting Content
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**\* (asterisk) Indicates a standard with differences between the TN State Standards' numbering and/or verbiage and the standards in Eureka**

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 the needs of their students.

Use the instructional map and Digital Suite resources as you prepare to teach a module for additional guidance in planning, pacing, and suggestions for omissions.



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## 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





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The **Standards for Mathematical Practice** describe varieties of expertise, habits of minds and productive dispositions that mathematics educators at all levels should seek to develop in their students. These practices rest on important National Council of Teachers of Mathematics (NCTM) “processes and proficiencies” with longstanding importance in mathematics education. Throughout the year, students should continue to develop proficiency with the eight Standards for Mathematical Practice. The following are the eight Standards for Mathematical Practice:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of them.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

This curriculum map is designed to help teachers make effective decisions about what mathematical content to teach so that ultimately our students can reach Destination 2025. 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 Skills for Mathematical Proficiency](#)



### Structure of the Standards

Structure of the TN State Standards include:

- **Content Standards** - Statements of what a student should know, understand, and be able to do.
- **Clusters** - Groups of related standards. Cluster headings may be considered as the big idea(s) that the group of standards they represent are addressing. They are therefore useful as a quick summary of the progression of ideas that the standards in a domain are covering and can help teachers to determine the focus of the standards they are teaching.
- **Domains** - A large category of mathematics that the clusters and their respective content standards delineate and address. For example, Number and Operations – Fractions is a domain under which there are a number of clusters (the big ideas that will be addressed) along with their respective content standards, which give the specifics of what the student should know, understand, and be able to do when working with fractions.
- **Conceptual Categories** – The content standards, clusters, and domains in the 9th-12th grades are further organized under conceptual categories. These are very broad categories of mathematical thought and lend themselves to the organization of high school course work. For example, Algebra is a conceptual category in the high school standards under which are domains such as Seeing Structure in Expressions, Creating Equations, Arithmetic with Polynomials and Rational Expressions, etc.



### How to Use the Maps

#### 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.



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## Topics Addressed in Quarter

### Module 2

- Topic A: Shapes and Centers of Distribution
- Topic B: Describing the Center of a Distribution
- Topic D: Numerical Data on Two Variables

### Module 5

- Topic A: Elements of Modeling
- Topic B: Completing the Modeling Cycle

**Time Frame: March 18 – May 24, 2019**

### Overview

In Module 2, students reconnect with and deepen their understanding of statistics and probability concepts first introduced in Grades 6, 7, and 8. Students develop a set of tools for understanding and interpreting variability in data, and begin to make more informed decisions from data. They work with data distributions of various shapes, centers, and spreads. Module 2 sets the stage for more extensive work with sampling and inference in later grades. In Module 5, students synthesize what they have learned during the year about functions to select the correct function type in a series of modeling problems. Students no longer have the benefit of a module or lesson title that includes function type to guide them in their choices. Skills and knowledge from the previous modules will support the requirements of this module, including writing, rewriting, comparing, and graphing functions and interpretation of the parameters of an equation. Students must also draw on their study of statistics in Module 2, using graphs and functions to model a context presented with data and/or tables of values. In module 5, the modeling cycle is used as the organizing structure, rather than function type.

Grade Level Standard	Type of Rigor	Foundational Standards
A1. S.ID.C.5	Conceptual Understanding	8.SP
A1. S.ID.C.6	Conceptual Understanding, Procedural Fluency	8.SP
A1. S.ID.C.7	Conceptual Understanding	8.SP
A1. A. CED.A.1	Conceptual Understanding & Application	8.EE
A1. A. CED.A.2	Conceptual Understanding, Procedural Fluency & Application	8.EE
A1. F.IF.B.3*	Conceptual Understanding	8.F.B.5
A1. F.IF.B.4*	Conceptual Understanding	8.F
A1. F.IF.B.5*	Conceptual Understanding & Procedural Fluency	8.F.B.4
A1. F.LE.A.2	Conceptual Understanding	8.F, 8.F



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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
<p><b>Module 2: Descriptive Statistics</b>  <b>Algebra I Pacing and Preparation Guide</b></p> <p><i>Allow approximately 0.5 week for instruction, review and assessment of Topic A (includes EOC review)</i>  <i>Allow 1 week for instruction, review and assessment of Topic B (includes EOC review)</i>  <b>Mid-Module 2 Assessment Window – March 28-April 2 (do not use problems from omitted lesson)</b>  <i>Allow approximately 1 week for instruction, review and assessment of Topic D (includes EOC review)</i>  <b>End-of-Module 2 Assessment Window – April 11- 12 (do not use problems from omitted lesson)</b></p>			
<p><b>Domain:</b> Interpreting Categorical and Quantitative Data</p> <p><b>Cluster:</b> Summarize, represent, and interpret data on a single count or measurement variable.</p> <ul style="list-style-type: none"> <li>■ <b>A1. S.ID.A.1</b> Represent single or multiple data sets with dot plots, histograms, stem plots (stem and leaf), and box plots.</li> <li>■ <b>A1. S.ID.A.2</b> Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.</li> <li>■ <b>A1. S.ID.A.3</b> Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</li> </ul>	<p><b>Essential Questions:</b></p> <ul style="list-style-type: none"> <li>• In what different ways can data be represented on a real number line, and how can statistics appropriate to the shape of the data distribution serve to compare two or more data sets?</li> <li>• What information can a slope (rate of change) and intercept (constant term) of a linear model provide regarding the context of a situation?</li> </ul> <p><b>Topic A Objectives</b></p> <p><b>Lesson 1:</b></p> <ul style="list-style-type: none"> <li>• Students use informal language to describe the shape, center, and variability of a distribution based on a dot plot, histogram, or box plot.</li> <li>• § Students recognize that a first step in interpreting data is making sense of the context.</li> <li>• § Students make meaningful conjectures to connect data distributions to their contexts and the questions that could be answered by studying the distributions.</li> </ul> <p><b>Lesson 2</b></p> <ul style="list-style-type: none"> <li>• Students construct a dot plot from a data set.</li> <li>• Students calculate the mean of a data set and the median of a data set.</li> <li>• Students observe and describe that</li> </ul>	<p><b>Topic A: Descriptive Statistics</b></p> <p>Lesson 1 (This is a review of concepts previously studied related to data. This should be reviewed as needed.)            Lesson 2            Lesson 3</p> <p><b>Special Note:</b> <i>It is recommended that teachers assess student gaps and scaffold accordingly using the resources/ tasks/lessons in the Resource Toolbox or those provided under Additional Resources.</i></p> <p><i>Also, assessments other than Mid-Module and End-of-Module assessments should be given based upon the lessons taught and the needs of the students.</i></p> <p><b>Additional Resources:</b>  <a href="#">Khan Academy Videos: Statistics Overview</a></p> <p>-</p> <p style="text-align: center;"><b>Task(s)</b></p> <p><a href="#">MVP Task 1 Texting By the Numbers</a>  <a href="#">MVP Task 2 Data Distributions</a></p> <p><a href="#">MathBits Algebra I Notebook</a></p>	<p><b>Vocabulary/Familiar Terms and Symbols for Module 2:</b></p> <p>Box Plot            Data Distribution            Mean            Mean Absolute Deviation            Median            Quartile            Variability</p> <p><b>New or Recently Introduced Terms for Module 2</b></p> <p>Association            Conditional Relative Frequency            Correlation Coefficient            Interquartile Range            Outlier            Residual            Residual Plot            Sample Standard Deviation            Skewed Data Distribution</p>



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	<p>measures of center (mean and median) are nearly the same for distributions that are nearly symmetrical.</p> <ul style="list-style-type: none"><li>• Students observe and explain why the mean and median are different for distributions that are skewed.</li><li>• Students select the mean as an appropriate description of center for a symmetrical distribution and the median as a better description of center for a distribution that is skewed.</li></ul> <p><b>Lesson 3:</b></p> <ul style="list-style-type: none"><li>• Students estimate the mean and median of a distribution represented by a dot plot or a histogram.</li><li>• Students indicate that the mean is a reasonable description of a typical value for a distribution that is symmetrical but that the median is a better description of a typical value for a distribution that is skewed.</li><li>• Students interpret the mean as a balance point of a distribution.</li><li>• Students indicate that for a distribution in which neither the mean nor the median is a good description of a typical value, the mean still provides a description of the center of a distribution in terms of the balance point.</li></ul>		
<p><b>Domain:</b> Interpreting Categorical and Quantitative Data</p> <p><b>Cluster:</b> Summarize, represent, and interpret data on a single count or measurement variable.</p> <p>■ <b>A1.S.ID.A.1</b> Represent single or multiple data sets with dot plots, histograms, stem plots (stem and leaf), and box plots.</p>	<p><b>Topic B Objectives:</b></p> <p><b>Lesson 4:</b></p> <ul style="list-style-type: none"><li>• Students calculate the deviations from the mean for two symmetrical data sets that have the same means.</li><li>• Students interpret deviations that are generally larger as identifying distributions that have a greater spread or variability than a distribution in which the</li></ul>	<p><b>Topic B: Describing Variability and Comparing Distributions</b></p> <p>Lesson 4 Lesson 5 (Combine with Lesson 6) Lesson 7 Lesson 8</p> <p><b>Mid-Module 2 Assessment</b> <b>(Complete by 4/2/19; do not use problems from omitted lesson)</b></p>	





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■ **A1.S.ID.A.2** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

■ **A1.S.ID.A.3** Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

deviations are generally smaller.

### Lesson 5:

- Students calculate the standard deviation for a set of data.
- Students interpret the standard deviation as a typical distance from the mean.

### Lesson 6:

- Students calculate the standard deviation of a sample with the aid of a calculator.
- Students compare the relative variability of distributions using standard deviations.

### Lesson 7:

- Students explain why a median is a better description of a typical value for a skewed distribution.
- Students calculate the 5-number summary of a data set.
- Students construct a box plot based on the 5-number summary and calculate the interquartile range (IQR).
- Students interpret the IQR as a description of variability in the data.
- Students identify outliers in a data distribution.

### Lesson 8:

- Students compare two or more distributions in terms of center, variability, and shape.
- Students interpret a measure of center as a typical value.
- Students interpret the IQR as a description of the variability of the data.
- Students answer questions that address differences and similarities for two or

**Special Note:** *It is recommended that teachers assess student gaps and scaffold accordingly using the resources/ tasks/lessons in the Resource Toolbox or those provided under Additional Resources.*

*Also, assessments other than Mid-Module and End-of-Module assessments should be given based upon the lessons taught and the needs of the students.*

### Additional Resources:

[Khan Academy Videos: Statistics Overview](#)  
[MathBits Algebra I Notebook](#)

### Task(s)

[Illustrative Math: Haircut Costs](#)  
[Illustrative Math: Speed Trap](#)



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	more distributions.		
<p><b>Domain:</b> Interpreting Categorical and Quantitative Data</p> <p><b>Cluster:</b> Summarize, represent, and interpret data on two categorical and quantitative variables.</p> <p>➤ <b>A1. S.ID.B.4 (formerly S-ID.B.6)</b> Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.</p> <p><b>a.</b> Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context.</p> <p><b>b. (formerly S-ID.B.6.c)</b> Fit a linear function for a scatter plot that suggests a linear association.</p> <p><i>Emphasize linear models, quadratic models, and exponential models with domains in the integers.</i></p> <p>For A1. S.ID.B.4a: i) Tasks have a real-world context. ii) Exponential functions are limited to those with domains in the integers.</p> <p><b>Domain:</b> Interpreting Categorical and Quantitative Data</p> <p><b>Cluster:</b> Interpret linear models</p> <p>■ <b>A1. S.ID.C.5 (formerly S-ID.C.7)</b> Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.</p>	<p><b>Topic D Objectives:</b></p> <p><b>Lesson 12:</b></p> <ul style="list-style-type: none"> <li>Students distinguish between scatter plots that display a relationship that can be reasonably modeled by a linear equation and those that should be modeled by a nonlinear equation.</li> </ul> <p><b>Lesson 13:</b></p> <ul style="list-style-type: none"> <li>Students distinguish between scatter plots that display a relationship that can be reasonably modeled by a linear equation and those that should be modeled by a nonlinear equation.</li> <li>Students use an equation given as a model for a nonlinear relationship to answer questions based on an understanding of the specific equation and the context of the data.</li> </ul> <p><b>Lesson 14:</b></p> <ul style="list-style-type: none"> <li>Students determine the least-squares regression line from a given set of data using technology.</li> <li>Students use the least-squares regression line to make predictions.</li> </ul> <p><b>Lesson 15-20 (optional standard included)</b> <b>Omit problems/tasks/lessons that are longer assessed.</b></p>	<p><b>OMIT Topic C</b></p> <p><b>Topic D: Numerical Data on Two Variables</b></p> <p>Lesson 12 (Review lesson) Lesson 13 Lesson 14 Lesson 15 (omit) Lesson 16 (omit) Lesson 17 (omit) Lesson 18 (omit) Lesson 19 Lesson 20 (extension)</p> <p><b>Task</b></p> <p><a href="#">Illustrative Math: Olympic Men's 100-meter dash</a></p> <p><b>Additional Resources:</b> <a href="#">MathBits Algebra I Notebook</a></p> <p><b>Special Note:</b> <i>It is recommended that teachers assess student gaps and scaffold accordingly using the resources/ tasks/lessons in the Resource Toolbox or those provided under Additional Resources.</i></p> <p><i>Also, assessments other than Mid-Module and End-of-Module assessments should be given based upon the lessons taught and the needs of the students.</i></p> <p><b>End-of-Module 2 Assessment</b> <b>(Complete by 4/12/19; do not use problems from omitted lesson)</b></p> <p><b>Special Note:</b> <i>It is recommended that teachers should begin preparing for <b>Module 5, Topic A</b> by 4/15/19.</i></p>	



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## Module 5: A Synthesis of Modeling with Equations and Functions

### Algebra I Pacing and Preparation Guide

Allow approximately 2 weeks for instruction, review and assessment of Topic A (includes EOC review & EOC)

Allow 3 weeks for instruction, review and assessment of Topic B

End-of-Module Assessment Window – May 14-15

Exams – May 21, 22, 23

<p><b>Domain:</b> Quantities <math>\square</math>  <b>Cluster:</b> Reason quantitatively and use units to solve problems.</p> <p>➤ <b>A1.N.Q.A.2 (formerly N.Q.B.2)</b> Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.  <i>Descriptive modeling refers to understanding and interpreting graphs; identifying extraneous information; choosing appropriate units; etc.</i></p> <p><b>Domain:</b> Create equations  <b>Cluster:</b> Create equations that describe numbers or relationships.</p> <p>■ <b>A1.A.CED.A.2</b> Create equations in two or more variables to represent relationships between quantities; graph equations with two variables on coordinate axes with labels and scales.</p> <p><b>Domain:</b> Interpreting Functions  <b>Cluster:</b> Interpret functions that arise in applications in terms of the context.</p> <p>■ <b>A1.F.IF.B.3 (formerly F.IF.B.4)</b> For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given</p>	<p><b>Essential Questions:</b></p> <ul style="list-style-type: none"> <li>• How can an appropriate equation be built by looking at a mathematical pattern?</li> <li>• How can prior knowledge of functions be used to build precise and efficient models?</li> <li>• How do the multiple representation of functions aid in building more efficient and more accurate models?</li> <li>• How can technology be employed to help build mathematical models, and how can it be used to assess the appropriateness of a specific model?</li> <li>• How can we derive and apply the formula for the sum of a finite geometric series?</li> <li>• How can both algebraic and geometric models optimize particular important values?</li> <li>• How can systems of equations and inequalities be used to define feasible regions of solutions to solve problems?</li> <li>• What is the purpose of building constraints for a model, including using constraints to define feasible solutions and using domain restrictions when analyzing graphs to ensure validity of a function?</li> <li>• Why is a deep knowledge of the various types of basic mathematical functions absolutely necessary in order to build</li> </ul>	<p><b>Topic A: Elements of Modeling</b>          Lesson 1          Lesson 2          Lesson 3</p> <p><b>Special Note:</b> <i>It is recommended that teachers assess student gaps and scaffold accordingly using the resources/ tasks/lessons in the Resource Toolbox or those provided under Additional Resources.</i></p> <p><i>Also, assessments other than Mid-Module and End-of-Module assessments should be given based upon the lessons taught and the needs of the students.</i></p> <p><b>Additional Resources:</b>  <a href="#">MathBits Algebra I Notebook</a></p> <p><b>Task(s)</b>  <a href="#">MVP Task 8 What Does It Mean?</a>  <a href="#">MVP Task 9 Geometric Meanies</a>  <a href="#">MVP Task 10 I Know...What Do You Know?</a></p>	<p><b>Vocabulary/Familiar Terms and Symbols for Module 5:</b></p> <p>Analytical Model          Arithmetic Sequence          Average Rate of Change          Cube Root Function          End Behavior          Exponential Function          First Differences          Function          Geometric Sequence          Linear Function          Parameter          Parent Function          Piecewise Defined Function          Quadratic Function          Range          Recursive Process          Square Root Function          Second Differences</p> <p><b>New or Recently Introduced Terms for Module 5</b>          Analytical Model          Descriptive Model</p>
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<p>a verbal description of the relationship. ☐</p> <p>■ <b>A1. F.IF.B.4 (formerly F.IF.B.5)</b> Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. ☐</p>	<p>models for real-world phenomena?</p> <p><b>Topic A Objectives</b></p> <p><b>Lesson 1:</b></p> <ul style="list-style-type: none"> <li>From a graphic representation, students recognize the function type, interpret key features of the graph, and create an equation or table to use as a model of the context for functions addressed in previous modules (i.e., linear, exponential, quadratic, cubic, square root, cube root, absolute value, and other piecewise functions).</li> </ul> <p><b>Lesson 2</b></p> <ul style="list-style-type: none"> <li>Students recognize linear, quadratic, and exponential functions when presented as a data set or sequence, and formulate a model based on the data.</li> </ul> <p><b>Lesson 3:</b></p> <ul style="list-style-type: none"> <li>Students make sense of a contextual situation that can be modeled with linear, quadratic, and exponential functions when presented as a word problem. They analyze a verbal description and create a model using equations, graphs, or tables.</li> </ul>		
<p><b>Domain:</b> Quantities ☐</p> <p><b>Cluster:</b> Reason quantitatively and use units to solve problems.</p> <p>➤ <b>A1. N.Q.A.2 (formerly N.Q.B.2)</b> Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.</p> <p><i>Descriptive modeling refers to understanding and interpreting graphs; identifying extraneous information; choosing appropriate units; etc.</i></p>	<p><b>Lesson 4:</b></p> <ul style="list-style-type: none"> <li>Students create a two-variable equation that models the graph from a context. Function types include linear, quadratic, exponential, square root, cube root, and absolute value. They interpret the graph and function and answer questions related to the model, choosing an appropriate level of precision in reporting their results</li> </ul> <p><b>Lesson 5:</b></p>	<p><b>Topic B; Completing the Modeling Cycle</b></p> <p>Lesson 4 Lesson 5 Lessons 6-7 Lessons 8-9</p> <p><b>Special Note:</b> <i>It is recommended that teachers assess student gaps and scaffold accordingly using the resources/ tasks/lessons in the Resource Toolbox or those provided under Additional Resources.</i></p>	



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## Quarter 4

## Algebra I

<p>➤ <b>A1.N.Q.A.3 (formerly N.Q.B.3)</b> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities</p> <p><b>Domain:</b> Create equations</p> <p><b>Cluster:</b> Create equations that describe numbers or relationships.</p> <p>■ <b>A1.A.CED.A.1</b> Create equations and inequalities in one variable and use them to solve problems. <i>Tasks are limited to linear, quadratic, or exponential equations with integer exponents.</i></p> <p>■ <b>A1.A.CED.A.2</b> Create equations in two or more variables to represent relationships between quantities; graph equations with two variables on coordinate axes with labels and scales.</p>	<ul style="list-style-type: none"> <li>Students recognize when a table of values represents an arithmetic or geometric sequence. Patterns are present in tables of values. They choose and define the parameter values for a function that represents a sequence.</li> </ul> <p><b>Lesson 6:</b></p> <ul style="list-style-type: none"> <li>Students write equations to model data from tables, which can be represented with linear, quadratic, or exponential functions, including several from Lessons 4 and 5. They recognize when a set of data can be modeled with a linear, exponential, or quadratic function and create the equation that models the data.</li> <li>Students interpret the function in terms of the context in which it is presented, make predictions based on the model, and use an appropriate level of precision for reporting results and solutions.</li> </ul> <p><b>Lesson 7:</b></p> <ul style="list-style-type: none"> <li>Students use linear, quadratic, and exponential functions to model data from tables, and choose the regression most appropriate to a given context. They use the correlation coefficient to determine the accuracy of a regression model and then interpret the function in context. They then make predictions based on their model, and use an appropriate level of precision for reporting results and solutions.:</li> </ul> <p><b>Lesson 8:</b></p> <ul style="list-style-type: none"> <li>Students model functions described verbally in a given context using graphs, tables, or algebraic representations.</li> </ul>	<p><i>Also, assessments other than Mid-Module and End-of-Module assessments should be given based upon the lessons taught and the needs of the students.</i></p> <p><b>Additional Resources:</b> MathBits Algebra I Notebook</p> <p><b>Task(s)</b></p> <p><a href="#">MVP Task 2 Sorting Out the Change</a>  <a href="#">MVP Task 3 Where's My Change?</a>  <a href="#">MVP Task 5 Getting Down to Business</a>  <a href="#">MVP Task 6 Growing, Growing, Gone</a></p> <p><a href="#">MVP Task 4 Training Day</a>  <a href="#">MVP Task 5 Training Day Part II</a>  <a href="#">MVP Task 6 Shifting Functions</a></p> <p>-</p> <p><b>Special Note:</b> <i>It is recommended that teachers assess student gaps and scaffold accordingly using the resources/ tasks/lessons in the Resource Toolbox or those provided under Additional Resources.</i></p> <p><i>Also, assessments other than Mid-Module and End-of-Module assessments should be given based upon the lessons taught and the needs of the students.</i></p> <p><b>End-of-Module 5 Assessment</b>  <b>(Complete by 5/15/19; do not use problems from omitted lesson)</b></p>	
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## Curriculum and Instruction – Mathematics

Quarter 4

Algebra I

	<p><b>Lesson 9:</b></p> <ul style="list-style-type: none"><li>• Students interpret the function and its graph and use them to answer questions related to the model, including calculating the rate of change over an interval, and always using an appropriate level of precision when reporting results.</li><li>• Students use graphs to interpret the function represented by the equation in terms of the context, and answer questions about the model using the appropriate level of precision in reporting results.</li></ul>		
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# Curriculum and Instruction – Mathematics

Quarter 4

Algebra I

## RESOURCE TOOLBOX

### Standards

[Teacher Guide to Algebra I Standards: Linear Equations](#)  
[HS Flip Book with Examples of Each Standard](#)  
 CCSS  
<http://www.ccsstoolbox.org/>  
<http://parcconline.org/>  
 Achieve  
[Tennessee Academic Standards for Mathematics](#)  
[Tennessee Assessment LiveBinder](#)

### Videos

[Khan Academy](#)  
[The Futures Channel](#)  
[The TeachingChannel](#)  
[Illuminations \(NCTM\)](#)  
[Get The Math](#)

### Calculator

[http://www.atomiclearning.com/ti\\_84](http://www.atomiclearning.com/ti_84)  
[TICCommonCore.com](#)  
<http://www.casioeducation.com/educators>

### Manipulatives/Other Resources

**Algebra Tiles**  
[MathBits Algebra I Notebook](#)  
[Problem Attic](#)  
[OpenEd](#)  
[National Library of Virtual Manipulatives](#)  
<http://www.shodor.org/interactivate/activities/>  
[Edugoodies](#)  
[Graphic Organizers \(9-12\)](#)

### NWEA MAP

**Resources:**[https://teach.mapnwea.org/assist/help\\_map/ApplicationHelp.htm#UsingTestResults/MAPReportsFinder.htm](https://teach.mapnwea.org/assist/help_map/ApplicationHelp.htm#UsingTestResults/MAPReportsFinder.htm) - Sign in and Click the Learning Continuum Tab – this resources will help as you plan for intervention, and differentiating small group instruction on the skill you are currently teaching. (Four Ways to Impact Teaching with the Learning Continuum)  
<https://support.nwea.org/khanrit> - These Khan Academy lessons are aligned to RIT scores.

### Tasks/Lessons

[Edutoolbox \(formerly Tncore.org\)](#)  
[Mathematics Assessment Project \(MARS Tasks, Lessons & PD Modules\)](#)  
[Dan Meyer's Three-Act Math Tasks](#)  
[Illustrative Math Tasks](#)  
[UT Dana Center](#)  
[Inside Math Tasks](#)  
[LearnZillion](#)

### ACT

[TN ACT Information & Resources](#)  
[ACT College & Career Readiness Mathematics Standards](#)



# Curriculum and Instruction – Mathematics

Quarter 4

Algebra I

## Shelby County Schools – Algebra I - March 2019

Mon	Tue	Wed	Thu	Fri	
				<b>1</b>	
<b>4</b> End-of-Module Assessment, Remediation and/or further Application	<b>5</b>	<b>6</b>	<b>7</b> End-of-Module 4 Assessment (Topics A - C) due	<b>8</b> Q3 Ends Prepare to launch Module 2	
<b>11</b> Spring Break	<b>12</b> Spring Break	<b>13</b> Spring Break	<b>14</b> Spring Break	<b>15</b> Spring Break	
<b>18</b> Q4 Begins Module 2, Topic A	<b>19</b>	<b>20</b>	<b>21</b> Module 2, Topic B	<b>22</b>	
<b>25</b> Module 2, Topic B cont.	<b>26</b>	<b>27</b>	<b>28</b> Mid-Module Assessment, Remediation and/or further Application	<b>29</b>	





# Curriculum and Instruction – Mathematics

Quarter 4

Algebra I

## Shelby County Schools – Algebra I - April 2019

Mon	Tue	Wed	Thu	Fri	
<b>1</b>	<b>2</b> Module 2 Mid-Module Assessment Due	<b>3</b> Module 2, Topic D (note omitted lessons)	<b>4</b>	<b>5</b>	
<b>8</b>	<b>9</b>	<b>10</b> End-of-Module Assessment, Remediation and/or further Application	<b>11</b>	<b>12</b> End-of-Module 2 Assessment due	
<b>15</b> State Testing Window Begins  Module 5, Topic A  Review topics in Modules 1, 3, 4 based on student needs	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	
<b>22</b> Module 5, Topic A  Review topics in Modules 1, 3, 4 based on student needs	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	
<b>29</b>  Review topics in Modules 1, 3, 4 based on student needs	<b>30</b>				



# Curriculum and Instruction – Mathematics

Quarter 4

Algebra I

## Shelby County Schools – Algebra I - May 2019

Mon	Tue	Wed	Thu	Fri	
		<b>1</b>	<b>2</b>	<b>3</b> State Testing Window Ends	
<b>6</b> Module 5, Topic B	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	
<b>13</b> End-of-Module Assessment, Remediation and/or further Application	<b>14</b>	<b>15</b> End-of-Module 5 Assessment due	<b>16</b> Revisit topics in Modules 1, 2, 3, 4 & 5 based on students' needs in preparation for Exam	<b>17</b>	
<b>20</b> Revisit topics in Modules 1, 2, 3, 4 & 5 based on students' needs in preparation for Exam	<b>21</b> Semester Exams	<b>22</b> Semester Exams	<b>23</b> Semester Exams	<b>24</b> End of Quarter <i>Last Day of School for Students</i>	
<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	