Quarter 1	Quarter 2	Quarter 3	Quarter 4
Properties of Exponents, Expressions, Equations, and Inequalities, Linear Systems, Various Functions & Their Graphs, Rational and Irrational Expressions	Polynomials, Quadratic Functions and Equations	Basic Geometry, Similar Triangles, Measurement	Right Triangles, Probability and Statistics, Distance and Midpoint Formulas, Operations on Functions, Exponential Functions
August 6 2018 – October 5, 2018	October 15, 2018 – December 19, 2018	January 7, 2019 – March 8, 2019	March 18, 2019 – May 24, 2019
B.A.CED.A.1	B.A.APR.A.1	B.A.APR.A.1	B.A.REI.A.1
B.A.CED.A.2	B.A.APR.B.2	B.A.APR.B.2	B.A.SSE.A.2
B.A.CED.A.2	B.A.REI.B.2	B.A.REI.B.2	B. G.C.A.1
B.A.SSE.A.1	B.F.IF.A.2	B.F.IF.A.2	B.G.GMD.A.1
B.A.REI.C.3	B.F.IF.C.4	B.F.IF.C.4	B.G.GMD.A.2
B.A.REI.D.5	B.N.CN.A.1	B.N.CN.A.1	B.G.GMD.A.3
B.F.IF.A.1	B.N.CN.A.2	B.N.CN.A.2	B.G.MG.A.1
B.F.IF.B.3	B.N.Q.A.1	B.N.Q.A.1	B.G.MG.A.2
B.F.IF.C.4	B.N.Q.A.3	B.N.Q.A.3	B.G.SRT.A.1
B.F.IF.C.5			B.N.Q.A.2
B.N.RN.A.1			
B.N.Q.A.1			
B.N.Q.A.3			
B.S.ID.C.4			

Tennessee Academic Standards for Mathematics

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?

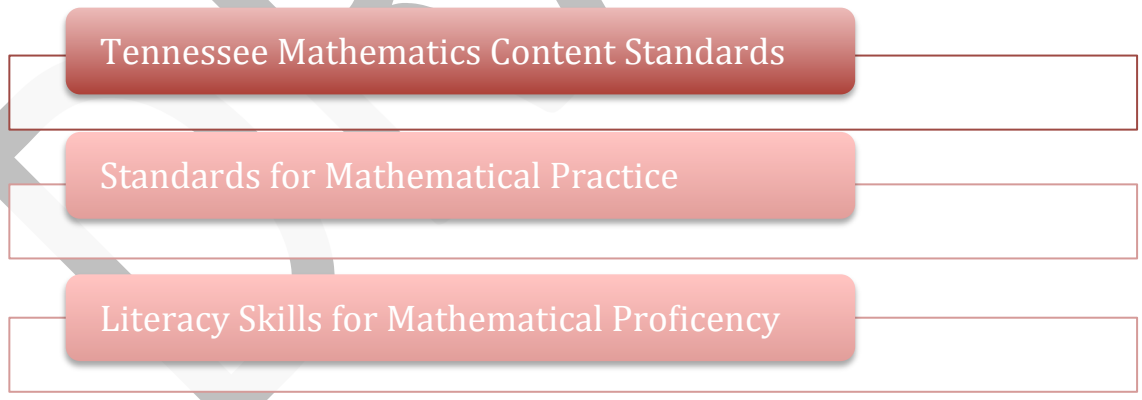
In order to achieve these ambitious goals, we must collectively work to provide our students with high quality, college and career ready aligned instruction. The Tennessee State Standards provide a common set of expectations for what students will know and be able to do at the end of a grade. The State 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**.

Tennessee Academic Standards for Mathematics

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 Academic Standards for Mathematics

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.

Tennessee Academic Standards for Mathematics

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 (for Algebra I, Algebra II & Geometry only). 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 & Resources
District and web-based resources have been provided in the Instructional Support & Resources columns. 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. 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.

Tennessee Academic Standards for Mathematics

Topics Addressed in Quarter

- **Right Triangles**
- **Probability and Statistics**
- **The Distance and Midpoint Formulas**
- **Operations on Functions**
- **Direct and Inverse Variation**
- **Exponential Functions**

Overview

This quarter reviews some geometry involving right triangles including the Pythagorean Theorem, special right triangles, and some basic trigonometric ratios. Students also review their understanding of probability and statistics and how to effectively display statistical data. Students finish the year with several miscellaneous topics including distance and midpoint formulas, operations on functions, direct and inverse variation, and exponential functions

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
Right Triangles ***McGraw Hill TN Bridge Math* Chapters 10 & 14** ***McGraw Hill Glencoe Geometry* Chapter 8** ***Prentice Hall /Pearson Algebra 2*, Chapter 13** **(Allow approximately 2.5 weeks for instruction, review, and assessment)**			
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster:** Define trigonometric ratios and solve problems involving right triangles. **B.G.SRT.B.3** Apply properties of 30° 60° 90°, 45° 45° 90°, similar, and congruent triangles.	**Essential Question(s):** • Why was the Pythagorean Theorem developed? • How can the Pythagorean Theorem be applied to the real world? **Objective(s):**	**McGraw-Hill Bridge Math** 10-2 The Pythagorean Theorem **McGraw-Hill Geometry** 8-2 The Pythagorean Theorem and Its Converse **Task(s):** Illustrative: Pythagorean Theorem	**Vocabulary:** legs, hypotenuse, Pythagorean Theorem **Writing in Math/Discussion:** In ancient Egypt, a pair of workers called rope stretchers would use a loop of rope divided by knots into 12 equal parts to mark off a perfect right angle in the sand. They would drive a

Tennessee Academic Standards for Mathematics

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
	Students will use the Pythagorean Theorem to solve problems involving right triangles.	**Additional Lessons/Resources:** Cpalms Lesson: Applying the Pythagorean Theorem Cpalms Lesson: Origami Boats - Pythagorean Theorem in the Real World Khan Academy: Pythagorean Theorem	stake through one knot. One worker would pull the rope taut at the third knot from the stake, while the other pulled the rope taut at the fourth knot on the other side of the stake. Write a paragraph and draw a diagram explaining why this system worked.
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster:** Define trigonometric ratios and solve problems involving right triangles. **B.G.SRT.B.3** Apply properties of 30° 60° 90°, 45° 45° 90°, similar, and congruent triangles.	**Essential Question(s):** How do the properties of triangles contribute to the geometric understanding of the world around us? **Objective(s):** Students will find the lengths of the sides of 30º-60º-90º and 45º-45º-90º triangles and apply special right triangle properties to solve problems.	**McGraw-Hill Bridge Math** 10-3 Special Right Triangles **McGraw-Hill Geometry** 8-3 Special Right Triangles **Task(s):** GSE Geometry: Unit 3 Right Triangle Geometry (select from the tasks) **Additional Lessons/Resources:** Khan Academy: 45-45-90-triangles Khan Academy: 45-45-90 triangles 2 Khan Academy: intro-to-30-60-90-triangles Khan Academy: 30-60-90-triangle-example-problem engageNY: Geometry Module 2, Topic D, Lessons 21-24	**Writing in Math/Discussion:** Is this statement always, sometimes, or never true? Explain your choice. *If one acute angle of a right triangle is half the measure of the other acute angle, then the side opposite that angle measures half the length of the hypotenuse.* List the special right triangles. Why is it important to know them?
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster:** Define trigonometric ratios and solve problems involving right triangles. **B.G.SRT.B.2** Apply basic trigonometric ratios to solve right triangle problems.	**Essential Question(s):** • What are the trigonometric ratios and when can each be used? • How can the trigonometric ratios be applied to real-life situations? • How is similarity related to the trigonometric ratios?	**McGraw-Hill Bridge Math** 14-1 Basic Trigonometric Ratios 14-2 Solve Right Triangles **McGraw-Hill Geometry** 8-4 Trigonometry	**Vocabulary**: trigonometry, trigonometric ratios, sine, cosine, tangent **Writing in Math/Discussion:** Give a mnemonic device for the basic trigonometric ratios. Explain its meaning.

Tennessee Academic Standards for Mathematics

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster:** Define trigonometric ratios and solve problems involving right triangles. **B.G.SRT.B.4** Solve problems involving angles of elevation and angles of depression.	**Objective(s):** • Students will identify trigonometric ratios. • Students will use trigonometric ratios to solve problems involving right triangles.	**Task(s):** GSE Geometry: Unit 3 Right Triangle Geometry *Discovering Trigonometric Ratio Relationships, p.83* TN Geometry Task: Making Right Triangles TN Geometry Task: Interstate **Additional Lessons/Resources:** Khan Academy: Basic-trigonometry Khan Academy: Example--trig-to-solve-the-sides-and-angles-of-a-right-triangle Brightstorm Videos: Trigonometric Ratios-Sine Brightstorm Videos: Trigonometric Ratios-Cosine Brightstorm Videos: Trigonometric Ratios-Tangent	Explain how you can use ratios of the side lengths to find the angle measures of the acute angles in a right triangle.
Domain: Similarity, Right Triangles and Trigonometry (G.SRT) **Cluster:** Define trigonometric ratios and solve problems involving right triangles. **B.G.SRT.B.2** Apply basic trigonometric ratios to solve right triangle problems.	**Essential Question(s):** How can special right triangles help us find the coordinates of certain angles on the unit circle? **Objective(s):** • Students will solve problems using trigonometry. • Students will determine the period, amplitude and position of sine curves.	**McGraw-Hill Bridge Math** 14-3 Graph the Sine Function 14-4 Experiment with the Sine Function **McGraw-Hill Geometry** 13-4 The Sine Function **Task(s)** Illustrative Math: Foxes and Rabbits 2 Ferris Wheel Task **Additional Lessons/Resources:** Khan Academy: The graphs of sine, cosine, and tangent Wolfram: Illustrating Sine with the Unit Circle Wolfram: Illustrating Cosine with the Unit Circle	**Vocabulary:** period, periodic function, amplitude **Writing in Math/Discussion:** Compare and contrast the sine curve and the cosine curve. Write rules you can use to find the period, amplitude, and position of a graph involving the cosine function. A note played on a musical instrument produces a sound wave with the equation $y = 3 \sin 4x + 3$. State the period and amplitude and

Tennessee Academic Standards for Mathematics

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
		Cpalms Lesson: Tune in and Sine	describe the position of the graph.
Probability and Statistics ***McGraw Hill TN Bridge Math* Multiple Chapters** ***McGraw Hill Glencoe Geometry*** ***Prentice Hall /Pearson Algebra 1*** ***Prentice Hall /Pearson Algebra 2*** **(Allow approximately 3.5 weeks for instruction, review, and assessment)**			
Domain: Conditional Probability and the Rules of Probability (S.CP) **Cluster:** Use the rules of probability to compute probabilities of compound events in a uniform probability model **B.S.CP.A.1** Understand and use basic counting techniques in contextual settings.	**Essential Question(s):** • How are probabilities computed? • Why is the computation of probabilities useful? • What is the difference between theoretical and experimental probability? **Objective(s):** Students will find the probability of an event using theoretical, experimental, and simulation methods.	**McGraw-Hill Bridge Math** 9-1 Review Percents and Probability **Prentice Hall /Pearson Algebra 2** 11-2 Probability **Task(s):** Illuminations: Stick or Switch **Additional Lessons/Resources:** Khan Academy: Solving-percent-problems Khan Academy: Probability basics	**Vocabulary:** probability, experiment, experimental probability, outcome, sample space, tree diagram, theoretical probability **Writing in Math/Discussion:** A person flips a penny, a nickel, and a dime. Each coin can land with heads up (H) or tails u (T). Make a tree diagram to show what differen outcomes are possible. You want to predict how many students in your school are right-handed. Describe how you would do it.
Domain: Conditional Probability and the Rules of Probability (S.CP) **Cluster:** Use the rules of probability to compute probabilities of compound events in a uniform probability model **B.S.CP.A.2** Compute a probability when the event and/or sample space are not given or obvious.	**Essential Question(s):** What is a simulation? **Objective(s):** Students will find the probability of an event using simulation methods.	**McGraw-Hill Bridge Math** 9-3 Problem Solving Skills: Simulations **Prentice Hall /Pearson Algebra 2** 11-2 Probability	**Vocabulary**: simulation, random numbers **Writing in Math/Discussion:** Describe a simulation you can do to find out how many cards you would expect to have to draw from a standard deck to get two kings. Why is a simulation better the more times you perform it?
Domain: Conditional Probability and the Rules of Probability (S.CP) **Cluster:** Use the rules of probability to compute probabilities of compound events in a	**Essential Question(s):** • What is a compound events? • What is an independent event? A	**McGraw-Hill Bridge Math** 9-4 Compound Events 9-5 Independent and Dependent Events	**Vocabulary:** compound event, mutually exclusive, complement, independent, dependent

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
uniform probability model **B.S.CP.A.3** Recognize the concepts of conditional and joint probability expressed in real-world contexts. **Domain:** Conditional Probability and the Rules of Probability (S.CP) **Cluster:** Use the rules of probability to compute probabilities of compound events in a uniform probability model **B.S.CP.A.4** Recognize the concept of independence expressed in real-world contexts.	dependent event? **Objective(s):** • Students will find the probability of the events A and B. • Students will find the probability of events A or B. • Students will find the probability of dependent and independent events.	**Prentice Hall /Pearson Algebra 2** 11-3 Probability of Multiple Events **Additional Lessons/Resources:** Schmoop: Compound Events Khan Academy: Dependent Probability Introduction Khan Academy: Independent and Dependent Probability	**Writing in Math/Discussion:** Suppose you roll a pair of dice. Why are rolling a multiple of 6 and a multiple of 4 not mutually exclusive events?
Domain: Conditional Probability and the Rules of Probability (S.CP) **Cluster:** Use the rules of probability to compute probabilities of compound events in a uniform probability model **B.S.CP.A.1** Understand and use basic counting techniques in contextual settings.	**Essential Question(s):** • How do I determine when to use a permutation or a combination to calculate a probability? • What is the fundamental Counting Principle? **Objective(s):** • Students will find the number of permutations and combinations of a set.	**McGraw-Hill Bridge Math** 9-6 Permutations and Combinations **Prentice Hall /Pearson Algebra 2** 11-1 Permutations and Combinations **Additional Lessons/Resources:** Khan Academy: Permutations Khan Academy: Combinations Khan Academy: Probability with Permutations and Combinations Cpalms: Permutations and Combinations	**Vocabulary:** fundamental counting principle, factorial notation, permutation, combination **Writing in Math/Discussion:** Find the number of permutations of the letters in the word *shutout*. Explain how you did it. Define "permutation" and "combination." Give some tips on how to know when to use a permutation or combination. .
Domain: Interpreting Categorical and Quantitative Data (S.ID) **Cluster:** Summarize, represent, and interpret data on a single count or measurement variable. **B.S.ID.A.1** Use statistics appropriate to the shape of the data distribution tocompare center (median, mean) and spread	**Essential Question(s):** • What kinds of data is best suited for a stem-and-leaf plot? • What kinds of data is best suited for a histogram? **Objective(s):** Students will construct stem-and-leaf	**McGraw-Hill Bridge Math** 2-9 Display Data **Prentice Hall /Pearson Algebra 1** 12-2 Frequency and Histograms **Task(s):** Stem-and-Leaf Plots to Histograms	**Vocabulary:** stem-and-leaf, outliers, cluster, gaps, histogram **Writing in Math/Discussion:** Write a paragraph or two comparing stem-and-leaf plots and histograms. Include in your comparison a discussion of the kinds of data for which each type of display is best suited

Tennessee Academic Standards for Mathematics

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
(interquartile range, standard deviation) of two or more different data sets. **Domain:** Interpreting Categorical and Quantitative Data (S.ID) **Cluster:** Summarize, represent, and interpret data on two categorical and quantitative variables. **B.S.ID.B.2** Interpret and use data from tables, charts, and graphs.	plots and histograms for a data set.	**Additional Lessons/Resources:** Khan Academy: Stem-and-Leaf Plots Khan Academy: Histograms Cpalms: Stem-and-Leaf Plots Cpalms: Histogram	and describe the statistical conclusions that can be deduced from analyzing each type of display. **Discussion** Have students to bring a sample of data represented by a table. Working in pairs, have them discuss their tables and determine whether a different type of display might have been more effective and why.
Domain: Interpreting Categorical and Quantitative Data (S.ID) **Cluster:** Summarize, represent, and interpret data on a single count or measurement variable. **B.S.ID.A.1** 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. **Domain:** Interpreting Categorical and Quantitative Data (S.ID) **Cluster:** Summarize, represent, and interpret data on two categorical and quantitative variables. **B.S.ID.B.2** Interpret and use data from tables, charts, and graphs.	**Essential Question(s):** What kinds of data is best suited for a circle graph? **Objective(s):** Students will compare data and solve problems involving circle graphs.	**McGraw-Hill Bridge Math** 10-5 Problem Solving Skills: Circle Graphs **Prentice Hall /Pearson Algebra 1** Skills Handbook p. 799, Circle Graphs **Additional Lessons/Resources:** Khan Academy: Circle Graphs Pearson Video: Circle Graphs	**Writing in Math/Discussion:** Write a paragraph about circle graphs and describe the kind of data that circle graphs are best suited.
Domain: Interpreting Categorical and Quantitative Data (S.ID) **Cluster:** Summarize, represent, and interpret data on a single count or measurement variable. **B.S.ID.A.1** Use statistics appropriate to the	**Essential Question(s):** • What kinds of data are best suited for a scatter plot? • What kinds of data are best suited for a box-and-whisker plot?	**McGraw-Hill Bridge Math** 9-7 Scatter Plots and Box-and-Whisker Plots Graphing Technology Lab: Scatter Plots (p.417a)	**Vocabulary:** scatter plot, line of best fit (trend line), positive correlation, negative correlation, box-and-whisker plot (box plot), extremes, lower quartile, upper quartile

Tennessee Academic Standards for Mathematics

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. **Domain:** Interpreting Categorical and Quantitative Data (S.ID) **Cluster:** Summarize, represent, and interpret data on two categorical and quantitative variables. **B.S.ID.B.2** Interpret and use data from tables, charts, and graphs. **Domain:** Interpreting Categorical and Quantitative Data (S.ID) **Cluster:** Summarize, represent, and interpret data on two categorical and quantitative variables. **B.S.ID.B.3** Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. 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. Emphasize linear, quadratic, and exponential models.	**Objective(s):** Students will interpret and make scatter plots and box-and-whisker plots.	**Prentice Hall /Pearson Algebra 1** 5-7 Scatter Plots and Trend Lines 12-4 Box-and-Whisker Plots **Task(s):** GSE Algebra I, Unit 6-Describing Data • *BMI Calculations*, p.35 • *Representing Data 2: Using Box Plots*, p.37 **Additional Lessons/Resources:** Khan Academy: Creating and Interpreting Scatter Plots Khan Academy: Box and Whiskers Plot	**Writing in Math** Is it possible for the mean of a set of data to fall outside the box part of a box-and-whisker plot? Explain.
Domain: Interpreting Categorical and Quantitative Data (S.ID) **Cluster:** Summarize, represent, and interpret data on a single count or measurement variable. **B.S.ID.A.1** Use statistics appropriate to the shape of the data distribution to	**Essential Question(s):** • When is it appropriate to use a linear model? • How do we make predictions and make informed decisions based on numerical information?	**McGraw-Hill Bridge Math** 9-8 Regression and Median-Fit Lines **Prentice Hall /Pearson Algebra 1** 5-7 Scatter Plots and Trend Lines	**Vocabulary:** best-fit line, linear regression, correlation coefficient **Writing in Math** Compare and contrast the method of finding the best-fit line for a set of data by hand to the linear regression method studied in this lesson.

Tennessee Academic Standards for Mathematics

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. **Domain:** Interpreting Categorical and Quantitative Data (S.ID) **Cluster:** Summarize, represent, and interpret data on two categorical and quantitative variables. **B.S.ID.B.2** Interpret and use data from tables, charts, and graphs.	**Objective(s):** • Students will write an equation of best-fit lines using linear regression. • Students will write equations of median-fit lines.	**Task(s):** Illustrative: Coffee and Crime GSE Algebra I, Unit 6-Describing Data • *Spaghetti Regression*, p.62 • *Devising a Measure for Correlation*, p.73 • *TV/Test Grades,* p. 75 • *iRegress,* p.95 **Additional Lessons/Resources:** Khan Academy: Correlation vs Causation Khan Academy: Fitting a Line to Data Using Excel	
Additional Topics ***McGraw Hill TN Bridge Math* Multiple Chapters** ***McGraw Hill Glencoe Geometry*** ***Pearson Algebra 1*** ***Pearson Algebra 2*** **(Allow approximately 2 weeks for instruction, review, and assessment)**			
Domain: Reasoning with Equations and Inequalities (A.REI) **Cluster:** Represent and solveequations and inequalities graphically. **B.A.REI.D.4** Use algebra and geometry to solve problems involving midpoints and distances.	**Essential Question(s):** • Under which circumstances would you use the distance and midpoint formulas? • How is the Pythagorean Theorem related to the distance formula? • Where can the concepts of distance and midpoint be applied in the real world? **Objective(s):** • Students will find the distance between two points on the coordinate plane. • Students will find the midpoint between two points on the	**McGraw-Hill Bridge Math** 12-8 The Distance and Midpoint Formulas **Prentice Hall /Pearson Algebra 1** Concept Byte – Distance and Midpoint Formulas (p.605) **Task(s):** Illustrative Math: Finding the Distance Between Points **Additional Lessons/Resources:** Khan Academy: Midpoint formula Khan Academy: Distance formula	**Vocabulary:** Distance Formula, Midpoint Formula **Writing in Math/Discussion:** Explain how the Midpoint Formula is related to finding the mean. Is the following statement *true* or *false*? Explain your reasoning. *It matters which ordered pair is first when using the Distance Formula.*

Tennessee Academic Standards for Mathematics

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
	coordinate plane. • Students will solve problems involving distance and midpoint formulas.		
Domain: Reasoning with Equations and Inequalities (A.REI) **Cluster:** Understand solving equations as a process of reasoning and explain the reasoning. **B.A.REI.A.1** Build functions and write expressions, equations, and inequalities for common algebra settings leading to a solution in context (e.g., rate and distance problems and problems that can be solved using proportions). **Domain:** Interpreting Functions (F.IF) **Cluster:** Understand the concept of a function and use function notation **B.F.IF.A.2** Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	**Essential Question(s):** • How do we perform mathematical operations on a function? • How are the properties of functions and functional operations useful? **Objective(s):** • Students will find the sum, difference, product, and quotient of functions. • Students will find the composition of functions. • Students will solve problems involving functions.	**McGraw-Hill Bridge Math** 13-10 Operations on Functions **Prentice Hall /Pearson Algebra 2** 6-6 Function Operations **Task(s):** Illustrative Math: Flu on the Campus Illustrative Math: Temperature Conversions **Additional Lessons/Resources:** Khan Academy: Composing Functions	**Vocabulary:** composition **Writing in Math/Discussion:** What is the difference between "f(x)" and "y"? When is it appropriate to use "f(x)"? Explain why a person would perform a composition of functions. Include a real-world example that you could solve by using composition of functions.
Domain: Interpreting Functions (F.IF) **Cluster:** Analyze functions using different representations. **B.F.IF.C.6** Use the properties of exponents to interpret expressions for exponential functions.	**Essential Question(s):** • What characterizes exponential growth and decay? • What are real world models of exponential growth and decay? • How can one differentiate an exponential model from a linear model given a real world set of data?	**McGraw-Hill Bridge Math** 13-8 Exponential Functions **Prentice Hall /Pearson Algebra 2** 7-1 Exploring Exponential Models **Task(s):** Illustrative Math: Identifying Exponential Functions Illustrative Math: Exponential Functions	**Vocabulary:** exponential function, exponential growth, exponential decay **Writing in Math/Discussion:** What types of practical uses do you think exponential growth and decay functions may have? Give some real-world examples of each.

Tennessee Academic Standards for Mathematics

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
	Objective(s): • Students will graph exponential functions. • Students will solve problems involving exponential growth and decay.	Math Vision Project: Module 3, Linear and Exponential Functions (select from the ten tasks) **Additional Lessons/Resources:** Khan Academy: Exponential Functions Khan Academy: Exponential Growth & Decay	

Tennessee Academic Standards for Mathematics

RESOURCE TOOLBOX		
NWEA MAP Resources: 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.**		
Textbook Resources http://www.connected.mcgraw-hill.com/ http://www.pearsonsuccessnet.com/	**Standards** Common Core Standards - Mathematics Common Core Standards - Mathematics Appendix A Edutoolbox (formerly TNCore) http://www.ccsstoolbox.org/ Common Core Lessons Tennessee State Math Standards	**Videos** Brightstorm Teacher Tube The Futures Channel Khan Academy Math TV Lamar University Tutorial Shmoop - We Speak Students
Additional Sites Illuminations (NCTM) Stem Resources www.learnzillion.com	**Interactive Manipulatives & Tasks** National Math Resources MARS Course 2 NASA Space Math Math Vision Project UT Dana Center Illustrative Mathematics Inside Math Tasks Math Vision Project Tasks Better Lesson National Math Resources SMARTboard Lessons	**Calculator** Math Nspired Texas Instrument Activities Casio Activities
Literacy Graphic Organizers (9-12)	**ACT** TN ACT Resources ACT College & Career Readiness Mathematics Standards	

Tennessee Academic Standards for Mathematics