Quarter 1		Quarter 2			Quarter 3		Quarter 4	
Expressions, Equations, Inequalities Various Functions, Equations & Their Graphs, Linear Systems, Quadratic Functions & Equations		Polynomials, Radicals, Inverses, Logarithms, Exponential Functions			Rational Expressions and Equations, Arithmetic and Geometric Sequences and Series, Probability		Trigonometric Functions, Pythagorean Identities, Unit Circle	
August 6 2018 – October 5, 2018		October 15, 2018 – December 19, 2018			January 7, 2019 – March 8, 2019		March 18, 2019 – May 23, 2019	
A2.A.REI. D.6	A2.A.REI. B.3	A2.A.APR. A.1	A2. F.IF. A.1	A2. F.IF. B.3b	A2.A.REI. A.1	A2.S.CP. A.2	A2.F.TF.A.1	
A2.F.BF. A.1	A2.A.REI. B.3a	A2.A.APR. A.2	A2. F.IF. A.2	A2. F.IF. B.3c	A2.A.REI. A.2	A2.S.CP.A.3	A2.F.TF.A.1a	
A2.F.BF. A.1a	A2. S. ID. B.2	A2.A.REI. A.1	A2. A. CED.A.1	A2. F.IF. B.4a	A2.A.REI. D.6	A2.S.CP.A.4	A2.F.TF.A.1b	
A2.F.BF.A.1b	A2. A.N.Q.A.1	A2.A.REI. A.2	A2. A. CED.A.2	A2. F.IF. B.5	A2.A.SSE. B.3	A2.S.CP.B.5	A2.F.TF.A.2	
A2. A. CED.A.1		A2.A.REI. D.6	A2.N.RN. A.1	A2. F.LE. A.1	A2.F.BF. A.1a	A2.S.CP.B.6	A2.F.TF.B.3	
A2. A. CED.A.2		A2.A.SSE. A.1	A2.N.RN. A.2	A2. F.LE. A.2	A2.F.BF. A.1b	A2. S.ID. A.1	A2.F.TF.B.3a	
A2.A.REI. C.4		A2.A.SSE. B.2/2a	A2.A.APR. B.3	A2. S.ID. B.2	A2.F.BF. A.2	A2. A. APR.C.4	A2.F.TF.B.3b	
A2.REI. C.5		A2.A.SSE. B.3	A2.A.APR. C.4	A2. A.N.Q.A.1	A2. S.IC.A.1	A2. F.BF.B.4	A2. A.N.Q.A.1	
A2. N.C.N. A.1		A2.F.BF. A.1/1a	A2. F.IF. B.3a	A2. F.BF.B.3	A2. S.IC.A.2	A2. A.N.Q.A.1		
A2. N.C.N. A.2		A2.F.BF. A.1b	A2. F.IF.B.3	A2. F.BF.B.4	A2. F. IF.A.1	A2. F. IF.B.3		
A2. N.C.N. B. 3				A2. F.LE.B.3	A2.S.CP. A.1			

Tennessee Mathematics Standards

■Major Content ➢ Supporting Content ⍰(star) Modeling Standard/Domain

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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?

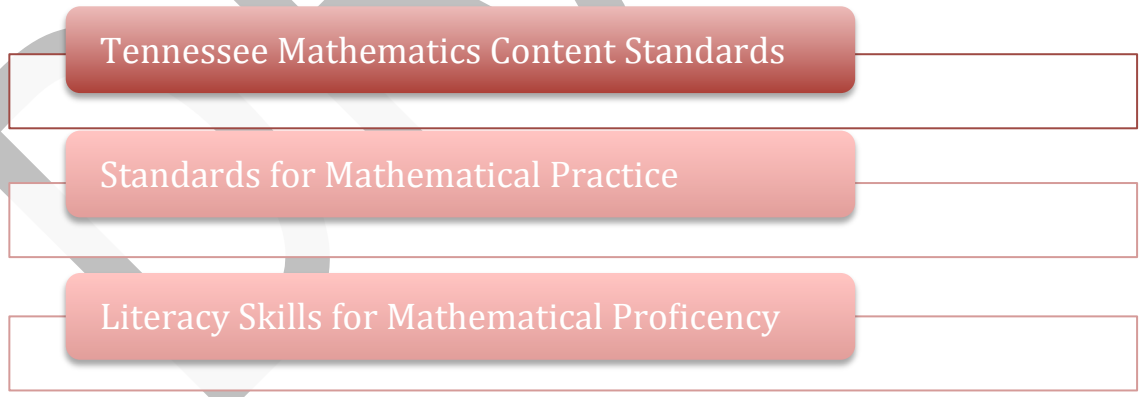
In order to achieve these ambitious goals, we must collectively work to provide our students with high quality, college and career ready aligned instruction. The Tennessee State Standards provide a common set of expectations for what students will know and be able to do at the end of a grade. The State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

■Major Content ➢ Supporting Content (star) Modeling Standard/Domain

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 Standards

■Major Content ➢ Supporting Content ⍰(star) Modeling Standard/Domain

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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.

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Tennessee Mathematics Standards

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.

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Tennessee Mathematics Standards

Topics Addressed in Quarter

- **Rational Expressions and Equations/Functions**
- **Sequences and Series**
- **Probability and Statistics**

Overview

During this quarter students will extend their understanding of functions and real numbers and increase their toolset for modeling in the real world. Not only will students begin work with rational exponents, they will deepen their understanding of the concept of function, and apply equation-solving and function concepts to rational functions. They will explore rational functions through graphing, solving, and learning their properties. The field of rational functions is analogous to the rational numbers and these functions will be explored through learning their properties, graphing and solving. Building on their work with linear, quadratic, exponential, and radical functions, in Algebra II students extend their repertoire of functions to include rational functions. Students work closely with the expressions that define the functions and continue to expand and hone their abilities to model and analyze situations that involve polynomial, radical, exponential, and logarithmic equations over the set of real and complex numbers. Students work with sequences and series and apply them to real-world situations. Finally, in this quarter, students see how the visual displays and summary statistics they learned in earlier grades relate to different types of data and to probability distributions. They identify different ways of collecting data— including sample surveys, experiments, and simulations—and the role that randomness and careful design play in the conclusions that can be drawn.

Content Standard	Type of Rigor
A2. A. REI.A.1	Conceptual Understanding
A2. A. REI.A.2	Conceptual Understanding & Procedural Fluency
A2.A.REI.D.6 (formerly A-REI.D.11)	Conceptual Understanding & Procedural Fluency
A2. A. SSE.B.3 (formerly A-SSE.B.4)	Procedural Fluency & Application
A2. F.IF.A.1(formerly F-IF.B.4)	Conceptual Understanding
A2.F.BF. A.1a	Conceptual Understanding & Application
A2.F.BF. A.1b	Conceptual Understanding, Procedural Fluency & Application
A2.F.BF. A.2	Conceptual Understanding, Procedural Fluency & Application
A2. S.IC.A.1	Conceptual Understanding
A2. S.IC.A.2	Procedural Fluency & Application

Tennessee Mathematics Standards

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
Rational Functions **(Allow approximately 4 weeks for instruction, review, and assessment)**			
Domain: Building Functions **Cluster:** Build new functions from existing functions. ➢ **A2. F.BF.B.4** Find inverse functions. **a**. Find the inverse of a function when the given function is one-to-one.	**Essential Question(s):** How is an inverse variation different than a direct variation? **Objective(s):** • Students will recognize and use inverse variation to create equations. • Students will use joint and other variations to create equations.	***Use the textbook resources to address procedural fluency.*** **Pearson** 8.1 Inverse Variation **Glencoe** 9.5 Variation Functions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Additional Resources:** Be Direct - Oil Spills on Land Very Varied - Inverse Variation HS Flip Book with examples of each Standard	**Vocabulary** Inverse variation, combined variation, joint variation **Writing in Math/ Discussion** How do you recognize an inverse variation given data? **Resources in the Pearson Book** Solve it," Think About a Plan, Find the Errors, Multiple word problems, Reasoning question, Compare/contrast question, Open-ended questions, and Connections to other real world topics and/or other subjects.
Domain: Building Functions **Cluster:** Build new functions from existing functions. ➢ **A2. F.BF.B.4** Find inverse functions. **a**. Find the inverse of a function when the given function is one-to-one. **Domain:** Interpreting Functions **Cluster:** Interpret functions that arise in applications in terms of the context. ■ **A2. F.IF.A.1 (formerly F-IF.B.4)** For a function that models a relationship	**Essential Question(s):** How do the *a, h*, and *k* values affect the graph of the reciprocal function? **Objective(s):** • Students will graph reciprocal functions and interpret key features of their graphs. • Students will graph translations of reciprocal functions and interpret key features.	***Use the textbook resources to address procedural fluency.*** **Pearson** 8.2 Reciprocal Function Family **Glencoe** 9.3 Graphing the Reciprocal Family ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.***	**Vocabulary** Reciprocal function, branch **Writing in Math/ Discussion** What are the key components of the graph of a reciprocal function? Create and graph an example about your thinking.

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Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. ⍰ *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior.* *i) Tasks have a real-world context.* *ii) Tasks may involve square root, cube root, polynomial, exponential, and logarithmic functions.* **Domain:** Interpreting Function **Cluster:** Analyze functions using different representations. ➢ **A2. F.IF.B.3 (formerly F-IF.C.7)** Graph functions expressed symbolically and show key features of the graph, by hand and using technology. ⍰ **Domain:** Quantities **Cluster:** Reason quantitatively and use units to solve problems ➢ **A2. N.Q.A.1** Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling. ⍰		**Additional Resources:** Math Vision Project: Module 1-Functions and Their Inverses (five tasks) *Brutus Bites Back* *Flipping Ferraris* *Tracking the Tortoise* *Pulling a Rabbit Out of a Hat* *Inverse Universe* Illustrative Math: Summer Intern HS Flip Book with examples of each Standard	
Domain: Interpreting Functions **Cluster:** Interpret functions that arise in applications in terms of the context. ■ **A2. F.IF.A.1 (formerly F-IF.B.4)** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch	**Essential Question(s):** • What are the key features of the graphs of rational functions? • How can functions be manipulated to make new functions? • By looking at an equation, how do you recognize points of discontinuity?	***Use the textbook resources to address procedural fluency.*** **Pearson** 8.3 Rational Functions and Their Graphs **Glencoe** 9.4 Graphing Rational Functions	**Vocabulary** Rational function, continuous graph, discontinuous graph, point of discontinuity, removable discontinuity, non-removable discontinuity **Writing in Math/ Discussion**

Tennessee Mathematics Standards

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
graphs showing key features given a verbal description of the relationship. ⍰ *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior.* *i) Tasks have a real-world context.* *ii) Tasks may involve square root, cube root, polynomial, exponential, and logarithmic functions.* **Domain:** Interpreting Function **Cluster:** Analyze functions using different representations. ➢ **A2. F.IF.B.3 (formerly F-IF.C.7)** Graph functions expressed symbolically and show key features of the graph, by hand and using technology. ⍰	**Objective(s):** • Students will identify properties of rational functions. • Students will recognize and graph rational functions, interpreting key features.	***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Additional Resources:** Math Nspired: Airport Impact Study Math Vision Project: Module 4- Rational Functions (seven tasks). *The Gift* *All in the Family* *What Does It Mean to be Rational?* *Rewriting Rational Expressions* *Watch Your Behavior* *Features of Rational Functions* *Graphing Rational Functions* HS Flip Book with examples of each Standard	How do you know that there is a vertical asymptote in a rational function and how do you find it?
Domain: Arithmetic with Polynomials and Rational Expressions **Cluster:** Understand the relationship between zeros and factors of Polynomials ➢ **A2.A.APR.C.4 (formerly A-APR.C.6)** Rewrite rational expressions in different forms.	***Essential Question(s):*** *What are the rules for multiplying and dividing fractions? Multiplying and dividing polynomials?* ***Objective(s):*** • *Students will simplify rational expressions.* • *Students will multiply and divide rational expressions.*	***Use the textbook resources to address procedural fluency.*** **Pearson** 8.4 Rational Expressions **Glencoe** 9.1 Multiplying and Dividing Rational Expressions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math**	**Vocabulary** Rational expression, simplest form, restrictions **Writing in Math/ Discussion** How do you find the restrictions when multiplying and dividing polynomial expressions?

Tennessee Mathematics Standards

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
		Module 1 Topic C, Lessons 22 - 24 **Additional Resources:** HS Flip Book with examples of each Standard Illustrative Math: Combined Fuel Efficiency Illustrative Math: Egyptian Fractions II Chemistry Example: Alcohol Solution Khan Academy Videos: Rational Expressions, Equations, and Functions	
Domain: Arithmetic with Polynomials and Rational Expressions **Cluster:** Understand the relationship between zeros and factors of Polynomials ➢ **A2.A.APR.C.4 (formerly A-APR.C.6**) Rewrite rational expressions in different forms.	***Essential Question(s):*** *How do you find the LCM of expressions?* ***Objective(s):*** *Students will add, subtract, and rewrite rational expressions.* .	***Use the textbook resources to address procedural fluency.*** **Pearson** 8.5 Adding and Subtracting Rational Expressions **Glencoe** 9.2 Adding and Subtracting Rational Functions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 1 Topic C, Lesson 25 **Additional Resources:** Application Problems Khan Video-Rational Expressions HS Flip Book with examples of each Standard	**Vocabulary** Complex fraction **Writing in Math/ Discussion** How can you extend addition and subtraction o rational numbers to addition and subtraction of rational expressions?

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Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
Domain: *Reasoning with Equations and Inequalities* ***Cluster:*** *Understand solving equations as a process of reasoning and explain the reasoning.* ■ **A2.A.REI.A.1** *Explain each step in solving a simple* equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. *Tasks are limited to square root, cube root, polynomial, rational, and logarithmic functions.* ■ **A2.A.REI.A.2** Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise ***Domain:*** *Reasoning with Equations and Inequalities* ***Cluster:*** *Represent and solve equations and inequalities graphically.* ■ **A2.A.REI.D.6 (formerly A-REI.D.11)** Explain why the *x*-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the approximate solutions using technology. *Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.*	***Essential Question(s):*** *When do you have extraneous solutions?* ***Objective(s):*** • *Students will solve rational equations and explain the reasoning behind the solution method.* • *Students will use rational equations to solve problems.*	***Use the textbook resources to address procedural fluency.*** **Pearson** 8.6 Solve Rational Equations **Glencoe** 9.6 Solving Rational Equations and Inequalities ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 1 Topic C, Lessons 26-27 **Additional Resources:** Property Rules Planting Flowers Resistors HS Flip Book with examples of each Standard **ACT Practice** (sample problems to prepare for the ACT) Pearson, pp.558-560 Glencoe, pp.612-613	**Vocabulary** Rational equation **Writing in Math/ Discussion** Explain why a rational equation could have extraneous solutions. Have students to create two different examples about their thinking- one equation that has an extraneous solution and one that does not.

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Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
Tasks may involve any of the function types mentioned in the standard.			
Sequences and Series **(Allow approximately 2 weeks for instruction, review, and assessment)**			
Domain: Building Functions **Cluster:** Build a function that models a relationship between two quantities. ■ **A2. F.BF. A.1a** Write a function that describes a relationship between two quantities. ⍰ **a.** Determine an explicit expression, a recursive process, or steps for calculation from a context. **b.** Combine standard function types using arithmetic operations. ■ **A2. F.BF.A.2** Know and write arithmetic and geometric sequences with an explicit formula and use them to model situations. ⍰ **Domain:** Linear, Quadratic, and Exponential Functions **Cluster:** Construct and compare linear, quadratic, and exponential models and solve problems ➢ **A2. F.LE.A.1** Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a table, a description of a relationship, or input-output pairs. ⍰	**Essential Question(s):** • What are the patterns? • What is the best way to represent the patterns? • How do we identify and express arithmetic sequences and geometric sequences? • When is it best to use an explicit formula? **Objective(s):** • Students will define, identify, and apply arithmetic sequences. • Students write explicit polynomial expressions for sequences by investigating successive differences of those sequences. • Students review and practice applying the properties of exponents for integer exponents. • Students model a real-world scenario involving exponential growth and decay. • Students review place value and scientific notation. • Students use scientific notation to compute with large numbers. • Students will calculate quantities that involve positive and negative rational	***Use the textbook resources to address procedural fluency.*** . **Pearson** 9.2 Arithmetic Sequences **Glencoe** 11.1 Sequences as Functions 11.2 Arithmetic Sequences 11.5 Recursion and Iteration ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Additional Resources:** Better Lesson: Introduction to Sequences TN Alg. 2 Assessment Task –Interior Angle Sum Illustrative Math: Susita's Account Khan Academy: Arithmetic Sequences Sequence and Series Applications HS Flip Book with examples of each Standard	**Vocabulary** Sequence, term of a sequence, explicit formula recursive formula, arithmetic sequence, common difference, arithmetic mean **Writing in Math/ Discussion** When is it easier to use a recursive formula? Have students to create two different examples -one explicit and one recursive- about their thinking. **Resources in the Pearson Book** Solve it," Think About a Plan, Find the Errors, Multiple word problems, Reasoning question, Compare/contrast question, Open-ended questions, and Connections to other real world topics and/or other subjects.

Tennessee Mathematics Standards

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
	exponents.		
Domain: Building Functions **Cluster:** Build a function that models a relationship between two quantities ■ **A2. F.BF. A .1a** Write a function that describes a relationship between two quantities. ⍰ a. Determine an explicit expression, a recursive process, or steps for calculation from a context. ■ **A2. F.BF.A.2** Know and write arithmetic and geometric sequences with an explicit formula and use them to model situations. ⍰	**Essential Question(s):** How do you find the next term in a geometric sequence? **Objective(s):** • Students will define, identify, and apply geometric sequences. • Students use geometric sequences to model situations of exponential growth and decay. • Students write geometric sequences explicitly and recursively and translate between the two forms.	***Use the textbook resources to address procedural fluency.*** **Pearson** 9.3 Geometric Sequences **Glencoe** 11.1 Sequences as Functions 11.3 Geometric Sequences 11.5 Recursion and Iteration ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 3, Topic D, Lesson 25 **Additional Resources:** Modeling Exponential Growth Task Achieve the Core: Exponential Growth & Decay Lesson TN Alg.2 Assessment Task–Honeybees Common Differences Khan Academy: Geometric Sequences HS Flip Book with examples of each Standard	**Vocabulary** Geometric sequence, geometric mean, common ratio **Writing in Math/ Discussion** Explain the difference between an arithmetic and geometric sequence. Have students to create examples of arithmetic and geometric sequences, showing their differences.
Domain: Seeing Structure in Expressions **Cluster:** Use expressions in equivalent forms	**Essential Question(s):** • What are some ways that geometric	***Use the textbook resources to address procedural fluency.***	**Vocabulary** Series, Geometric series, converge,

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Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
to solve problems. ■ **A2.A.SSE.B.3** Recognize a finite geometric series (when the common ratio is not 1), and know and use the sum formula to solve problems in context. **Domain:** Building Functions **Cluster:** Build a function that models a relationship between two quantities. ■ **A2. F.BF.A.2** Know and write arithmetic and geometric sequences with an explicit formula and use them to model situations. ⍰	series are used in the real world? • What are the differences between a finite and infinite geometric series? **Objective(s):** • Students will define geometric series and find their sums. • Students derive the sum of a finite geometric series formula. • Students apply the sum of a finite geometric series formula to a structured savings plan. • Students use the sum of a finite geometric series formula to develop a formula to calculate a payment plan for a car loan and use that calculation to derive the present value of an annuity formula. • Students will compare payment strategies for a decreasing credit card balance. • Students will apply the sum of a finite geometric series formula to a decreasing balance on a credit card. • Students model the scenario of buying a house. • Students recognize that a mortgage is mathematically equivalent to car loans studied in Lesson 30 and apply the present value of annuity formula to a new situation. • Students use geometric series to calculate how much money should be saved each month to have 1 million in assets within a specified amount of time.	**Pearson** 9.5 (Finite)Geometric Series **Glencoe** 11.3 Geometric Series ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Eureka Math** Module 3, Topic E, Lessons 29 – 30 & 33 **Additional Resources:** HS Flip Book with examples of each Standard TN Alg.2 Assessment Task -Patterns in Patterns Khan Academy: Sequences and Series	diverge, finite series, infinite series, limits **Writing in Math/ Discussion** How do you decide if an infinite geometric series converges or diverges? Explain.
Probability and Statistics			

Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
(Allow approximately 3 weeks for instruction, review, and assessment)			
Domain: Interpreting Categorical and Interpretive Data **Cluster:** Make inferences and justify conclusions from sample surveys, experiments, and observational studies. ■ **A2. S.IC.A.2** Use data from a sample survey to estimate a population mean or proportion; use a given margin of error to solve a problem in context.	**Essential Question(s):** 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.	***Use the textbook resources to address procedural fluency.*** **Pearson** 11.2 Probability – Simulation **Glencoe** 12.4 Probability and Probability Distributions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.*** **Additional Resources:** Engage New York: math-g7-m5-topic-b-lesson-10-teacher Khan Video on Simulation e Math instruction: Unit 12 HS Flip Book with examples of each Standard	**Vocabulary** Experimental probability, simulation, sample space, equally likely outcomes, theoretical probability **Writing in Math/ Discussion** Why is a simulation better the more times you perform it? **Resources in the Pearson Book** Solve it," Think About a Plan, Find the Errors, Multiple word problems, Reasoning question, Compare/contrast question, Open-ended questions, and Connections to other real world topics and/or other subjects.
Domain: Conditional Probability and the Rules of Probability **Cluster:** Understand independence and conditional probability and use them to interpret data ➢ **A2. S.CP.A.1** Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and,"	**Essential Question(s):** What is the difference independent and dependent events? **Objective(s):** • Students will find the probability of the events A and B. • Students will find the probability of event A or B.	***Use the textbook resources to address procedural fluency.*** **Pearson** 11.3 Probability of Multiple Events **Glencoe** 12.4 Probability and Probability Distributions ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met.***	**Vocabulary** Dependent events, independent events mutually exclusive events **Writing in Math/ Discussion** Make up a sample problem that would show mutually exclusive events.

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Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
"not"). ➢ **A2. S.CP.A.2** Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.		**Additional Resources:** e Math instruction: Unit 12 Illustrative Math: The Titanic Illustrative Math: The Titanic 2 HS Flip Book with examples of each Standard	
Domain: Conditional Probability and the Rules of Probability **Cluster:** Use the rules of probability to compute probabilities of compound events in a uniform probability model. ➢ **A2. S.CP.B.5 (formerly S-CP.B.6)** Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model. *For example, a teacher gave two exams. 75 percent passed the first quiz and 25 percent passed both. What percent who passed the first quiz also passed the second quiz?* ➢ **A2. S.CP.B.6 (formerly S-CP.B.7)** Know and apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model. *For example, in a math class of 32 students, 14 are boys and 18 are*	**Essential Question(s):** What makes a probability conditional? **Objective(s):** • Students will find conditional probabilities and apply the Addition Rule. • Students will use tables and tree diagrams to determine conditional probabilities.	***Use the textbook resources to address procedural fluency.*** **Pearson** 11-4 Conditional Probability **Glencoe** 12.3 Conditional Probability ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met*** **Additional Resources:** e Math instruction: Unit 12 UT Dana Center: Gamers Task Illustrative Math: Rain and Lightning Illustrative Math: Finding Probabilities of Compound Events Illustrative math: How Do You Get to School? HS Flip Book with examples of each Standard	**Vocabulary** Conditional probability **Writing in Math/ Discussion** Write about a conditional situation in your everyday life.

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Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
girls. On a unit test 6 boys and 5 girls made an A. If a student is chosen at random from a class, what is the probability of choosing a girl or an A student? **Domain:** Conditional Probability and the Rules of Probability **Cluster:** Understand independence and conditional probability and use them to interpret data ➢ **A2. S.CP.A.3** Know and understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B. ➢ **A2. S.CP.A.4 (formerly S-CP.A.5)** Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.*			
Domain: Making Inferences and Justifying Conclusions	**Essential Question(s):** • How can data collection help in making	***Use the textbook resources to address procedural fluency.***	**Vocabulary** Population, sample, convenience sample,

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Tennessee Mathematics Standards

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
Cluster: Make Inferences and justify conclusions from sample surveys, experiments, and observational studies. ■ **A2. S.IC.A.1 (formerly S-IC.B.3)** Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each. *For example, in a given situation, is it more appropriate to use a sample survey, an experiment, or an observational study? Explain how randomization affects the bias in a study.* ■ **A2. S.IC.A.2 (formerly S-IC.B.4)** Use data from a sample survey to estimate a population mean or proportion; use a given margin of error to solve a problem in context.	decisions? • How can situations be modeled and approximated using probability and statistic? • How can parameters be adjusted to help in making the best fit for a given situation? **Objective(s):** • Students will identify sampling methods. • Students will recognize the differences and bias in samples and surveys. • Students will solve problems using real-world data from surveys or studies.	**Pearson** 11.7 Samples and Surveys **Glencoe** 12.1 Experiments, Surveys, and Observational Studies ***Use the following resources to ensure that the intended outcome and level of rigor of the standards are met*** **Additional Resources:** Chocolicious Illustrative Math: Strict Parents Illustrative Math: Musical Preferences Illustrative Math: Types of Statistical Studies HS Flip Book with examples of each Standard	self-selected sample, systematic sample, random sample, bias, observational study, controlled experiment, survey **Writing in Math/ Discussion** What are the key features to an observational study?
Domain: Interpreting Categorical and Interpretive Data **Cluster:** Summarize, represent, and interpret data on a single count or measurement variable ➢ **A2. S.ID.A.1** Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages using the Empirical Rule.	**Essential Question(s):** What percent of data falls within three standard deviations? **Objective(s):** Students will use a normal distribution and make inferences/draw conclusions from the data.	***Use the textbook resources to address procedural fluency.*** **Pearson** 11.9 Normal Distribution **Glencoe** 12.5 Normal Distribution 12.5 Extension Lesson; Normal Distributions and z-Scores ***Use the following resources to ensure that the intended outcome and level of rigor of***	**Vocabulary** Discrete probability distribution, continuous probability distribution, normal distribution, z-score **Writing in Math/ Discussion** How do outliers fit in with the normal curve?

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
		the standards are met **Additional Resources:** e Math instruction: Unit 13 Math Vision Project- Module 8- Statistics (choose from the following eight tasks) *What is Normal?* *Just ACT Normal* *B Normal?* *Whoa! That's Weird!* *Would You Like to Tray a Sample?* *Would You Like to Try a Sample?* *Let's Investigate – A Solidify Understanding Task* *Slacker's Simulation* Dana Center Task: Is This Your Normal? Data Analysis Khan Academy Standard Deviation Khan Academy HS Flip Book with examples of each Standard **ACT Practice** (sample problems to prepare for the ACT) Pearson, pp.608-610 Glencoe, pp.674-677	

RESOURCE TOOLBOX

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Textbook Resources

Pearson:

http://www.pearsonsuccessnet.com

Online Tools

Think About a Plan (Editable)
Standardized Test Prep
Extra Practice (Editable)
Find the Errors!
Enrichment (Editable)
Solve It!
ELL Support (Editable)
Activities, Games, and Puzzles (Editable)
Teaching with TI Technology
Homework Video Tutors
Lesson Quizzes
Assessments
Reteaching (Editable)
Common Core Lessons
Standardized Test Prep
Performance Tasks

Glencoe:

https://connected.mcgraw-hill.com/connected/login.do

Online Tools

Chapter Animation
Chapter Quizzes & Tests
Editable Worksheets
Anticipation Guides
Personal Tutors
Lesson PowerPoints
Enrichment Masters
Graphing Calculator Activities

Standards

Common Core Standards - Mathematics
Common Core Standards - Mathematics Appendix A
Edutoolbox (formerly TNCore)
The Mathematics Common Core Toolbox
PARCC Blueprints and Test Specifications FAQ
CCSS Toolbox
New York Education Department Tasks
PARCC High School Math Tasks
TICommonCore.com
TN Department of Education Math Standards
PARCC Practice Test
HS Flip Book with Examples of each Standard
JMAP

Videos

Brightstorm
Teacher Tube
The Futures Channel
Khan Academy
Math TV
Lamar University Tutorial
e Math instruction

Additional Sites

TN Dept. of Education Assessment Live Binder
e Math instruction
UT Dana Center
Mars/Math Shell Tasks* (**Not accessible via SCS server)**
Inside Math Tasks
Math Vision Project Tasks
Better Lesson
SCS Math Tasks
Dana Center Algebra 2 Assessments
Graphic Organizers (9-12)
University of Idaho Literacy Strategies

Interactive Manipulatives

Illuminations (NCTM)
National Math Resources
NASA Space Math
Math Vision Project
Purple Math

ACT

TN ACT Information & Resources
ACT College & Career Readiness Mathematics Standards

Calculator

Math Nspired
Texas Instrument Activities
Casio Activities

NWEA MAP

Resources:https://teach.mapnwea.org/assist/help_map/ApplicatinHelp.htm#UsingTestResults/MAPReportsFinder.htm - Sign in an Click the Learning Continuum Tab – this resources will help as yo plan for intervention, and differentiating small group instruction on the skill you are currently teaching. (Four Ways to Impact Teachir with the Learning Continuum)

https://support.nwea.org/khanrit - These Khan Academy lessons are aligned to RIT scores.

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■Major Content ➢ Supporting Content ⍰(star) Modeling Standard/Domain