



## Curriculum and Instruction – Mathematics

### Quarter 1

### BRIDGE MATH

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 12, 2019 – October 11, 2019	October 21, 2019 – December 20, 2019	January 6, 2020 – March 13, 2020	March 23, 2020 – May 22, 2020
B.A.CED.A.1	B.A.APR.A.1	B.A.REI.A.1	B.A.REI.D.4
B.A.CED.A.2	B.A.APR.B.2	B.A.SSE.A.2	B.F.IF.C.6
B.A.CED.A.3	B.A.REI.B.2	B.G.C.A.1	B.G.SRT.B.2
B.A.SSE.A.1	B.F.IF.A.2	B.G.GMD.A.1	B.G.SRT.B.3
B.A.REI.C.3	B.F.IF.C.4	B.G.GMD.A.2	B.G.SRT.B.4
B.A.REI.D.5	B.N.CN.A.1	B.G.GMD.A.3	B.S.CP.A.1
B.F.IF.A.1	B.N.CN.A.2	B.G.MG.A.1	B.S.CP.A.2
B.F.IF.B.3	B.N.Q.A.1	B.G.MG.A.2	B.S.CP.A.3
B.F.IF.C.4	B.N.Q.A.3	B.G.SRT.A.1	B.S.CP.A.4
B.F.IF.C.5		B.N.Q.A.2	B.S.ID.A.1
B.N.RN.A.1			B.S.ID.B.2
B.N.Q.A.1			B.S.ID.B.3
B.N.Q.A.3			
B.S.ID.C.4			



### Introduction

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

### What will success look like?

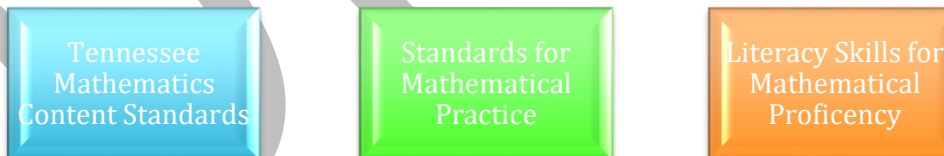


In order to achieve these ambitious goals, we must collectively work to provide our students with high quality, college and career ready aligned instruction. The Tennessee State Standards provide a common set of expectations for what students will know and be able to do at the end of a grade. The State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

## Instructional Shifts for Mathematics



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





## How to Use the 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.



## Topics Addressed in Quarter

- Properties of Real Numbers
- Properties of Exponents
- Expressions, Equations and Inequalities
- Linear Systems
- Various Functions & Their Graphs
- Rational and Irrational Expressions

## Overview

Students begin the quarter learning the definition and properties of real numbers and exponential notation. Students expand the definition of exponential notation to include what it means to raise a nonzero number to a zero power; Students discern the structure of exponents by relating multiplication and division of expressions with the same base to combining like terms using the distributive property, and by relating multiplying three factors using the associative property to raising a power to a power.

Students gradually shift to solving linear equations and inequalities and systems of linear equations and inequalities. Throughout middle school, students practiced the process of solving linear equations and systems of linear equations. Now instead of just solving equations, they formalize descriptions of what they learned before (variable, solution sets, etc.) and are able to explain, justify, and evaluate their reasoning as they strategize methods for solving linear equations. Students take their experience solving systems of linear equations further as they prove the validity of the addition, substitution and elimination methods and learn a formal definition for the graph of an equation and use it to explain the reasoning of solving systems graphically, and graphically represent the solution to systems of linear inequalities.

After mastering solving of linear equations and inequalities, students apply related solution techniques and the properties of exponents to the creation and solution of simple exponential expressions and students end the quarter multiplying and dividing expressions that contain radicals to simplify their answers.



# Curriculum and Instruction – Mathematics

## Quarter 1

## BRIDGE MATH

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
<p><b>Chapter 1 Essential Mathematics (McGraw-Hill Bridge Math)</b>  <b>Chapter 1- Foundations of Algebra &amp; Chapter 7 Exponents and Exponential Functions (Prentice Hall Algebra I)</b>            (Allow approximately 1.5 weeks for instruction, review, and assessment)</p>			
<p><b>Domain:</b> The Real Number System (N. RN)  <b>Cluster:</b> Use properties of rational and irrational numbers.  <b>B.N.RN.A.1.</b> Use rational and irrational numbers in calculations and in real world context.</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>What are the definition, description, and difference of rational and irrational numbers?</li> <li>Why is it important for students to know the square root of a number?</li> </ul> <p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will develop a thorough understanding of both rational and irrational numbers; make both historical and concrete connections between irrational numbers and the real world.</li> <li>Students will understand that there are numbers that are not rational numbers, called irrational numbers which together with the rational numbers form the real number system that satisfies the law of exponents.</li> <li>Students will identify and graph real numbers.</li> <li>Students will use math symbols to describe sets and describe the relationships among sets and elements of sets.</li> </ul>	<p><b>McGraw-Hill Bridge Math</b></p> <p>1-1 The Language of Mathematics            1-2 Real Numbers            1-3 Union and Intersection of Sets</p> <p><b>Prentice Hall Algebra 1</b></p> <p>1-3 Real Numbers and the Number Line</p> <p><b>Task(s):</b>  <a href="#">Illustrative Mathematics: Operations with Real Numbers</a></p> <p><b>Additional Resources:</b>  <a href="#">Brightstorm Video: Introduction to Real Numbers</a>  <a href="#">Brightstorm Video: Set Operations-Intersection</a>  <a href="#">Khan Academy: Intersection &amp; Union of Sets</a></p> <p><a href="#">ACT Academy</a> ACT Academy™ is a free online learning tool and test practice program designed to help students get the best score possible on the ACT test, and well on their way to college and career success.</p>	<p><b>Vocabulary:</b> square root, radical, perfect square, finite set, infinite set, subset, element of a set, real number, rational number, irrational number, natural number, integer, whole number, universal set, inequality, union, intersection, complement, Venn diagram</p> <p><b>Writing in Math:</b>            Have students respond to the following in their math journal or notebook.</p> <ul style="list-style-type: none"> <li>What are real numbers?</li> <li>Are there numbers that aren't real?</li> <li>Compare and contrast the union of a set and the intersection of a set.</li> </ul>
<p><b>Domain:</b> Quantities (N.Q)  <b>Cluster:</b> Reason quantitatively and use units to solve problems.  <b>B.N.Q.A.3</b> Solve problems involving squares, square roots of numbers, cubes, and cube roots of number</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>How do exponential functions model real-world problems and their solutions?</li> <li>How can you determine if two or more expressions are equivalent? How can you generate equivalent expressions?</li> </ul>	<p><b>McGraw-Hill Bridge Math</b></p> <p>1-7 Distributive Property and Properties of Exponents</p> <p><b>Prentice Hall Algebra 1</b></p> <p>1-7 The Distributive Property</p>	<p><b>Vocabulary:</b> exponential form, base, exponent, distributive property</p> <p><b>Writing in Math:</b>            Describe how the distributive property can be</p>



# Curriculum and Instruction – Mathematics

## Quarter 1

## BRIDGE MATH

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<p><b>Domain:</b> Seeing Structure in Expressions (A.SSE)</p> <p><b>Cluster:</b> Write expressions in equivalent forms to solve problems.</p> <p><b>B.A.SSE.A.1</b> Use properties of multiplication and division to solve problems containing scientific notation.</p>	<p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will use properties of exponents to evaluate and simplify expressions.</li> <li>Students will use the distributive property to evaluate and simplify expressions.</li> <li>Students will apply properties to evaluate and simplify expressions.</li> </ul>	<p>7-1 Zero and Negative Exponents 7-3 Multiplying Powers with the Same Base 7-4 More Multiplication Properties of Exponents 7-5 Division Properties of Exponents</p> <p><b>Task(s):</b> <a href="#">Illustrative Mathematics: Forms of Exponential Expressions</a></p> <p><b>Additional Resources:</b> <a href="#">Khan Academy Video: Distributive Property</a> <a href="#">Khan Academy Videos: Exponent Property Review</a></p>	<p>used to simplify or expand an expression.</p> <p>How does the property for powers of a power apply to positive and negative exponents?</p>
<p><b>Domain:</b> Quantities (N.Q)</p> <p><b>Cluster:</b> Reason quantitatively and use units to solve problems.</p> <p><b>B.N.Q.A.3</b> Solve problems involving squares, square roots of numbers, cubes, and cube roots of number</p> <p><b>Domain:</b> Seeing Structure in Expressions (A.SSE)</p> <p><b>Cluster:</b> Write expressions in equivalent forms to solve problems.</p> <p><b>B. A.SSE.A.1</b> Use properties of multiplication and division to solve problems containing scientific notation.</p> <p><b>Domain:</b> Interpreting Functions (F.IF)</p> <p><b>Cluster:</b> Analyze functions using different representations.</p> <p><b>B.F.IF.C.5</b> Write a function defined by an</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>Why is it important to understand how to write numbers in scientific notation?</li> <li>How does scientific notation differ from standard notation?</li> <li>How does multiplying by a power of 10 affect the decimal?</li> </ul> <p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will evaluate variable expressions with negative exponents.</li> <li>Students will write numbers in scientific notation.</li> <li>Students multiply and divide numbers expressed in scientific notation.</li> </ul>	<p><b>McGraw-Hill Bridge Math</b> 1-8 Exponents and Scientific Notation</p> <p><b>Prentice Hall Algebra 1</b> 7-2 Scientific Notation</p> <p><b>Task(s):</b> <a href="#">Illustrative Mathematics: Ants vs Humans</a></p> <p><b>Additional Resources:</b> <a href="#">Khan Academy Video: Exponent Properties Involving Products</a> <a href="#">TI-84/Navigator Lesson</a></p>	<p><b>Vocabulary:</b> scientific notation</p> <p><b>Writing in Math:</b> Why and how is scientific notation useful in the real world? Describe what happens to a decimal when it is multiplied by <math>10^n</math> and <math>10^{-n}</math>.</p>



Curriculum and Instruction – Mathematics

Quarter 1

BRIDGE MATH

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
<p>expression in different but equivalent forms to reveal and explain different properties of the function.</p>			
<p><b>Chapter 2 Essential Algebra (McGraw-Hill Bridge Math)</b>  <b>Chapter 1 - Foundations of Algebra, Chapter 2 Solving Equations &amp; Chapter 4 An Introduction to Functions (PH Algebra I)</b>  <b>(Allow approximately 1.5 weeks for instruction, review, and assessment)</b></p>			
<p><b>Domain:</b> Interpreting Functions (I.IF)  <b>Cluster:</b> Understand the concept of a function and use function notation.  <b>B.F.IF.A.1.</b> Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If <math>f</math> is a function and <math>x</math> is an element of its domain, then <math>f(x)</math> denotes the output of <math>f</math> corresponding to the input <math>x</math>. The graph of <math>f</math> is the graph of the equation <math>y = f(x)</math>.</p> <p><b>Domain:</b> Interpreting Functions (I.IF)  <b>Cluster:</b> Interpret functions that arise in applications in terms of context.  <b>B.F.IF.B.3</b> Recognize functions as mappings of an independent variable into a dependent variable.</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>What are the characteristics of a function and how can you use those characteristics to represent the function in multiple ways?</li> </ul> <p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will determine whether a relation is a function.</li> <li>Students will identify the domain and range of a relation.</li> <li>Students will represent mathematical relationships using graphs.</li> </ul>	<p><b>McGraw-Hill Bridge Math</b>            2-2 The Coordinate Plane, Relations, and Functions</p> <p><b>Prentice Hall Algebra 1</b>  <b>Review:</b> Graphing in the Coordinate Plane p. 60            4-1 Using Graphs to Relate Two Quantities            4-6 Formalizing Relations and Functions</p> <p><b>Additional Resource(s):</b>  <a href="#">Functions and Their Graphs</a> (section 3.1)</p>	<p><b>Vocabulary:</b> coordinate plane, quadrant, ordered pair, x-coordinate, y-coordinate, function, independent variable, dependent variable, mapping, relation, domain, range</p> <p><b>Writing in Math:</b></p> <ul style="list-style-type: none"> <li>Have students list what they know about linear functions.</li> <li>With a partner, have the students list what they want to find out about linear functions. Each pair must list at least one thing they want to find out about linear functions.</li> </ul>
<p><b>Domain:</b> Creating Equations (A.CED)  <b>Cluster:</b> Create equations that describe numbers or relationships.  <b>B.A.CED.A.1</b> Create equations and inequalities in one variable and use them to solve real world problems.</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>Why is the concept of a function important and how do you use function notation to show a variety of situations modeled by functions?</li> <li>What does it mean for a quantity to change at a constant rate?</li> <li>In what ways can we manipulate an algebraic equation to find the value of an unknown quantity?</li> </ul> <p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will write an equation symbolically to express a contextual</li> </ul>	<p><b>McGraw-Hill Bridge Math</b>            2-3 Linear Functions</p> <p><b>Prentice Hall Algebra 1</b>            1-8 An Introduction to Equations  <b>Concept Byte:</b> Using Tables to Solve Equation, p.59            4-2 Patterns and Linear Functions</p> <p><b>Task(s):</b>  <a href="#">Illustrative Math: Modeling with a Linear Function</a></p>	<p><b>Vocabulary:</b> zero pairs, linear function, linear equation, open sentence</p> <p><b>Writing in Math:</b></p> <ul style="list-style-type: none"> <li>What are the differences between an expression and an equation?</li> <li>Does a mathematical expression have a solution? Explain.</li> </ul>



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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
	problem. <ul style="list-style-type: none"> <li>Students will graph linear functions.</li> <li>Students will solve linear equations by making a table.</li> </ul>	<b>Additional Resource(s):</b> <a href="#">Modeling with a Linear Function</a> <a href="#">eMathInstruction Unit 2: Linear Expressions, Equations &amp; Inequalities</a>	
<p><b>Domain:</b> Creating Equations (A.CED)</p> <p><b>Cluster:</b> Create equations that describe numbers or relationships.</p> <p><b>B.A.CED.A.1</b> Create equations and inequalities in one variable and use them to solve real world problems.</p> <p><b>B.A.CED.A.2</b> Create equations in two or more variables to represent relationships between quantities.</p>	<p><b>Essential Question(s):</b> How can a formula be rearranged to highlight a quantity of interest using the same reasoning as in solving equations?</p> <p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will rewrite and use literal equations and formulas</li> <li>Students will use multiplication properties of equality to solve equations.</li> </ul>	<p><b>McGraw-Hill Bridge Math</b> 2-5 Solve Multi-Step Equations</p> <p><b>Prentice Hall Algebra 1</b> 2-2 Solving Two-Step Equations 2-3 Solving Multi-Step Equations <b>Concept Byte:</b> Modeling Equations with Variables on Both Sides 2-4 Solving Equations with Variables on Both Sides</p> <p><b>Additional Resources:</b>  <a href="#">Learnzillion Video Lesson: Solve a multi-step equation</a>  <a href="#">eMathInstruction Unit 2: Linear Expressions, Equations &amp; Inequalities</a></p>	
<p><b>Chapter 2 Essential Algebra (CONTINUED) &amp; Chapter 6 Linear Systems of Equations</b>  <b>Chapter 3 Solving Inequalities, Chapter 5 Linear Functions, and</b>  <b>Chapter 6 Systems of Equations (PH Algebra I)</b>  <b>(Allow approximately 1.5 weeks for instruction, review, and assessment)</b></p>			
<p><b>Domain:</b> Creating Equations (A.CED)</p> <p><b>Cluster:</b> Create equations that describe numbers or relationships.</p> <p><b>B.A.CED.A.1</b> Create equations and inequalities in one variable and use them to solve real world problems.</p> <p><b>Domain:</b> Reasoning with Equations and Inequalities (A.REI)</p> <p><b>Cluster:</b> Represent and solve equations and inequalities graphically.</p> <p><b>B.A.REI.D.5</b> Solve a linear inequality using multiple methods and interpret the solution as</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>How is solving an inequality different from solving an equation?</li> <li>Why is the inequality symbol reversed when the inverse operation involves multiplying or dividing by a negative number?</li> <li>When do you use inequalities? When do you not?</li> </ul> <p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will solve linear inequalities by using multiplication and division.</li> </ul>	<p><b>McGraw-Hill Bridge Math</b> 2-6 Solve Inequalities in Multiplication and Division</p> <p><b>Prentice Hall Algebra 1</b> 3-1 Inequalities and Their Graphs 3-3 Solving Inequalities Using Multiplication or Division</p> <p><b>Additional Resource(s):</b>  <a href="#">Solving Inequalities Using Multiplication or Division</a>  <a href="#">CCSS Video Lesson: Solving inequalities</a>  <a href="#">eMathInstruction Unit 2: Linear Expressions,</a></p>	





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## Quarter 1

## BRIDGE MATH

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES		
it applies to the context.	<ul style="list-style-type: none"> <li>Students will graph solutions of a linear inequality on a number line.</li> </ul>	<a href="#">Equations &amp; Inequalities</a>		
<p><b>Domain:</b> Creating Equations (A.CED)  <b>Cluster:</b> Create equations that describe numbers or relationships.  <b>B.A.CED.A.1</b> Create equations and inequalities in one variable and use them to solve real world problems.</p> <p><b>Domain:</b> Reasoning with Equations and Inequalities (A.REI)  <b>Cluster:</b> Represent and solve equations and inequalities graphically.  <b>B.A.REI.D.5</b> Solve a linear inequality using multiple methods and interpret the solution as it applies to the context.</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>When do you use inequalities? When do you not?</li> <li>What can we do with a system of inequalities that we cannot do with a single inequality?</li> </ul> <p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will solve an inequality in one or two variables.</li> <li>Students will graph the solution of a system of linear inequalities.</li> <li>Students will interpret the solution of a linear inequality.</li> </ul>	<p><b>McGraw-Hill Bridge Math</b>            2-7 Solve Linear Inequalities  <b>Prentice Hall Algebra 1</b>            3-2 Solving Inequalities Using Addition or Subtraction            3-4 Solving Multi-Step Inequalities</p> <p><b>Additional Resources:</b>  <a href="#">LearnZillion Video Lesson: Graphing inequalities on a number line</a>  <a href="#">eMathInstruction Unit 2: Linear Expressions, Equations &amp; Inequalities</a></p>		<p><b>Vocabulary:</b> linear inequality in two variables, boundary, half-plane</p> <p><b>Writing in Math:</b>            Describe the difference between the solution of a linear inequality in one variable and the solution of a linear inequality in two variables.</p>
<p><b>Domain:</b> Interpreting Categorical and Quantitative Data (S.ID)  <b>Cluster:</b> Interpret linear models.  <b>B.S.ID.C.4</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>Domain:</b> Interpreting Functions (F.IF)  <b>Cluster:</b> Analyze functions using different representations.  <b>B.F.IF.C.4</b> Graph linear, quadratic, absolute value, and piecewise functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated ones.</p> <p><b>Domain:</b> Quantities (N.Q)  <b>Cluster:</b> Reason quantitatively and use units to solve</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>What are the advantages and disadvantages of solving a system of linear equations graphically versus algebraically?</li> <li>How can systems of equations be used to represent situations and solve problems?</li> </ul> <p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will solve linear equations.</li> <li>Students will write the slope-intercept form of an equation and graph the equation.</li> </ul>	<p><b>McGraw-Hill Bridge Math</b>            6-1 Slope of a Line and Slope-intercept Form  <b>Prentice Hall Algebra 1</b>            5-1 Rate of Change and Slope            5-3 Slope-Intercept Form</p> <p><b>Additional Resources:</b>  <a href="#">LearnZillion Video Lesson: Finding the slope of a line</a>  <a href="#">Khan Academy: Graphing Lines &amp; Slope</a></p> <p><b>ACT Academy</b> ACT Academy™ is a free online learning tool and test practice program designed to help students get the best score possible on the ACT test, and well on their way to college and career success.</p>		<p><b>Vocabulary:</b> slope, rate of change, parent function</p> <p><b>Writing in Math:</b></p> <ul style="list-style-type: none"> <li>Is it true that a line with slope 1 always passes through the origin? Explain your reasoning.</li> <li>Describe two ways to determine whether an equation is linear.</li> </ul>



Curriculum and Instruction – Mathematics

Quarter 1

BRIDGE MATH

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
<p>problems.  <b>B.N.Q.A.1</b> Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.</p>			
<p><b>Domain:</b> Interpreting Categorical and Quantitative Data (S.ID)  <b>Cluster:</b> Interpret linear models.  <b>B.S.ID.C.4</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>Domain:</b> Creating Equations (A.CED)  <b>Cluster:</b> Create equations that describe numbers or relationships.  <b>B.A.CED.A.3</b> Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.</p>	<p><b>Essential Question(s):</b>            What are the key characteristics of a linear function?</p> <p><b>Objective(s):</b>            Students will write equations for lines in slope-intercept and point-slope forms.</p>	<p><b>McGraw-Hill Bridge Math</b>            6-3 Write Equations for Lines  <b>Prentice Hall Algebra 1</b>            5-3 Slope Intercept Form            5-4 Point-Slope Form</p> <p><b>Task(s):</b>  <a href="#">Edutolbox Task Arc: Instructional Resources-Creating &amp; Interpreting Functions</a>  <a href="#">Task 1 –Joe’s on the Beach Ice Cream</a></p> <p><b>Additional Lessons/Resources:</b>  <a href="#">Khan Academy: Slope intercept form</a>  <a href="#">Khan Academy: Point-slope form</a>  <a href="#">Better Lesson: From Standard Form to Slope-Intercept Form</a>  <a href="#">Better Lesson: Analyzing Linear Functions</a></p>	
<p><b>Chapter 6 Linear Systems of Equations (CONTINUED)/Chapter 6 Systems of Equations (PH Algebra I)</b>  <b>(Allow approximately 3 weeks for instruction, review, and assessment)</b></p>			
<p><b>Domain:</b> Reasoning with Equations and Inequalities (A.REI)  <b>Cluster:</b> Solve systems of equations.  <b>B.A.REI.C.3</b> Solve and explain the solutions to a system of equations using a variety of representations including combinations of linear and non-linear equations.</p> <p><b>Domain:</b> Creating Equations (A.CED)  <b>Cluster:</b> Create equations that describe</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>How do different linear functions with the same variables interact?</li> <li>What is the best way to solve a particular system of equations?</li> <li>What is the significance of the solution to a system of linear equations?</li> </ul> <p><b>Objective(s):</b></p>	<p><b>McGraw-Hill Bridge Math</b>            6-4 Systems of Equations  <b>Prentice Hall Algebra 1</b>            6-1 Solving Systems by Graphing  <b>Concept Byte:</b> Solving Systems Using Tables and Graphs (use after 6-1)</p> <p><b>Additional Resources:</b>  <a href="#">Khan Academy: Systems of Equations</a></p> <p><b>Vocabulary:</b> independent system, dependent system, solution of a system of linear equations, consistent system, inconsistent system</p> <p><b>Writing in Math:</b>            Suppose you graph a system of linear equations. If a point is on only one of the lines, is it a solution of the system? Explain.</p>	



# Curriculum and Instruction – Mathematics

## Quarter 1

## BRIDGE MATH

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
numbers or relationships. <b>B.A.CED.A.2</b> Create equations in two or more variables to represent relationships between quantities.	<ul style="list-style-type: none"> <li>Students will solve a system of equation by graphing.</li> <li>Students will analyze a special system of equations</li> </ul>		
<b>Domain:</b> Reasoning with Equations and Inequalities (A.REI) <b>Cluster:</b> Solve systems of equations. <b>B.A.REI.C.3</b> Solve and explain the solutions to a system of equations using a variety of representations including combinations of linear and non-linear equations.  <b>Domain:</b> Creating Equations (A.CED) <b>Cluster:</b> Create equations that describe numbers or relationships. <b>B.A.CED.A.2</b> Create equations in two or more variables to represent relationships between quantities.	<b>Essential Question(s):</b> When is the substitution method a better method than graphing for solving a system of linear equations?  <b>Objective(s):</b> Students will solve systems of equations using the substitution method.	<b>McGraw-Hill Bridge Math</b> 6-5 Solve Systems by Substitution <b>Prentice Hall Algebra 1</b> 6-2 Solving Systems Using Substitution  <b>Task(s):</b> <a href="#">TN Task, Alg. 2 Assessment Resource: Boxed In</a>  <b>Additional Resources:</b> <a href="#">Khan Academy: Systems of Equations</a>	<b>Vocabulary:</b> substitution method  <b>Writing in Math:</b> When is the substitution method a better method than graphing for solving a system of linear equations?
<b>Domain:</b> Reasoning with Equations and Inequalities (A.REI) <b>Cluster:</b> Solve systems of equations. <b>B.A.REI.C.3</b> Solve and explain the solutions to a system of equations using a variety of representations including combinations of linear and non-linear equations.  <b>Domain:</b> Creating Equations (A.CED) <b>Cluster:</b> Create equations that describe numbers or relationships. <b>B.A.CED.A.2</b> Create equations in two or more variables to represent relationships between quantities.	<b>Essential Question(s):</b> When is it more appropriate to solve a system of linear equations by the elimination method than by graphing or by substitution?  <b>Objective(s):</b> Students will solve a system of linear equations by adding or subtracting and multiplying to eliminate a variable.	<b>McGraw-Hill Bridge Math</b> 6-6 Solve Systems by Adding and Multiplying  <b>Prentice Hall Algebra 1</b> 6-3 Solving Systems Using Elimination <b>Concept Byte:</b> Matrices and Solving systems (after 6-3) 6-4 Applications of Linear Systems  <b>Additional Resources:</b> <a href="#">Khan Academy: Systems of Equations</a>	<b>Vocabulary:</b> elimination method, multiplication and addition method  <b>Writing in Math:</b> How can someone tell when solving by elimination is appropriate and when solving by substitution is appropriate?
<b>Domain:</b> Creating Equations (A.CED) <b>Cluster:</b> Create equations that describe numbers or relationships. <b>B.A.CED.A.1</b> Create equations and inequalities in one variable and use them to solve real world problems.	<b>Essential Question(s):</b> <ul style="list-style-type: none"> <li>How can you determine whether an ordered pair is a solution of a system of linear inequalities?</li> </ul> <b>Objective(s):</b>	<b>McGraw-Hill Bridge Math</b> 6-8 Systems of Inequalities <b>Prentice Hall Algebra 1</b> 6-5 Linear Inequalities 6-6 Systems of Linear Inequalities Concept Byte: Graphing Linear Inequalities	<b>Vocabulary:</b> linear inequality, system of linear inequality, solution of system of linear inequality



# Curriculum and Instruction – Mathematics

## Quarter 1

## BRIDGE MATH

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT & RESOURCES	
<p><b>Domain:</b> Reasoning with Equations and Inequalities (A.REI)</p> <p><b>Cluster:</b> Solve systems of equations.</p> <p><b>B.A.REI.C.3</b> Solve and explain the solutions to a system of equations using a variety of representations including combinations of linear and non-linear equations.</p> <p><b>Domain:</b> Reasoning with Equations and Inequalities (A.REI)</p> <p><b>Cluster:</b> Represent and solve equations and inequalities graphically.</p> <p><b>B.A.REI.D.D.5</b> Solve a linear inequality using multiple methods and interpret the solution as it applies to the context.</p>	<ul style="list-style-type: none"> <li>Students will model a real-world situation using systems of linear inequalities.</li> <li>Use graphing to solve a system of linear inequalities.</li> </ul>	<p>(after 6-6)</p> <p><b>Additional Resources:</b>  <a href="#">Khan Academy: Systems of Equations</a></p> <p><b>ACT Academy</b> ACT Academy™ is a free online learning tool and test practice program designed to help students get the best score possible on the ACT test, and well on their way to college and career success.</p> <p><b>Writing in Math:</b>            Write an inequality that describes the region of the coordinate plane not included in the graph of <math>y &lt; 5x + 1</math>. Explain your reasoning.</p>	
<p><b>Radicals, Radicals Expressions, and Radical Equations</b>  <i>Bridge Math Chapter 10</i>  <i>Prentice Hall Algebra I – Chapter 10</i>            (Allow approximately 1.5 weeks for instruction, review, and assessment)</p>			
<p><b>Domain:</b> The Real Number System (N.RN)</p> <p><b>Cluster:</b> Use properties of rational and irrational numbers.</p> <p><b>B.N.RN.A.1.</b> Use rational and irrational numbers in calculations and in real-world context.</p>	<p><b>Essential Question(s):</b></p> <ul style="list-style-type: none"> <li>How are radical expressions simplified?</li> </ul> <p><b>Objective(s):</b></p> <ul style="list-style-type: none"> <li>Students will simplify sums, differences, products and quotients of radical expressions.</li> <li>Students will identify extraneous solutions to when solving radical expressions.</li> </ul>	<p><b>McGraw-Hill Bridge Math</b>            10-1 Irrational Numbers</p> <p><b>Prentice Hall Algebra 1</b>            10-2 Simplifying Radicals            10-3 Operations with Radical Expressions            10-4 Solving Radical Equations</p> <p><b>Additional Resources:</b>  <a href="#">Radicals and Radical Expressions</a> (lessons and performance tasks)  <a href="#">Simplifying Radicals Worksheet</a>  <a href="#">Lesson for Operation with Radical Expressions</a>  <a href="#">Khan Academy: Radicals</a></p> <p><b>Vocabulary:</b> radical expression, like radicals, unlike radicals, radicand, extraneous solution</p> <p><b>Writing in Math:</b></p> <ul style="list-style-type: none"> <li>Explain how you can tell whether a radical expression is in simplified form.</li> </ul> <p>Explain the difference between squaring <math>\sqrt{x - 1}</math> and <math>\sqrt{x} - 1</math>.</p>	



# Curriculum and Instruction – Mathematics

## Quarter 1

## BRIDGE MATH

### RESOURCE TOOLKIT

<p><b>Textbook Resources</b>  <a href="http://www.connected.mcgraw-hill.com/">http://www.connected.mcgraw-hill.com/</a>  <a href="http://www.pearsonsuccessnet.com/">http://www.pearsonsuccessnet.com/</a></p>	<p><b>Standards</b>  <a href="#">Common Core Standards - Mathematics</a>  <a href="#">Common Core Standards - Mathematics Appendix A</a>  <a href="#">Edutoolbox (formerly TNCore)</a>  <a href="http://www.ccsstoolbox.org/">http://www.ccsstoolbox.org/</a>  <a href="#">Common Core Lessons</a>  <a href="#">Tennessee State Math Standards</a>  <a href="#">HS Flip Book with Examples of each Standard</a></p>	<p><b>Videos</b>  <a href="#">Brightstorm</a>  <a href="#">Teacher Tube</a>  <a href="#">The Futures Channel</a>  <a href="#">Khan Academy</a>  <a href="#">Math TV</a>  <a href="#">Lamar University Tutorial</a>  <a href="#">e Math Instruction</a>  <a href="#">Shmoop</a></p>
<p><b>Additional Sites</b>  <a href="#">Illuminations (NCTM)</a>  <b>Stem Resources</b>  <a href="#">GSE Tasks: Modeling and Analyzing Quadratic Functions (a collection of tasks)</a></p>	<p><b>Interactive Manipulatives &amp; Tasks</b>  <a href="#">Illustrative Mathematics</a>  <a href="#">Inside Math Tasks</a>  <a href="#">Math Vision Project Tasks</a>  <a href="#">Better Lesson</a>  <a href="#">SMARTboard Lessons</a></p>	<p><b>Calculator</b>  <a href="#">Math Nspired</a>  <a href="#">Texas Instrument Activities</a>  <a href="#">Casio Activities</a>  <a href="#">Desmos</a></p>
<p><b>SEL Resources</b>  <a href="#">SEL Connections with Math Practices</a>  <a href="#">SEL Core Competencies</a>  <a href="#">The Collaborative for Academic, Social, and Emotional Learning (CASEL)</a></p>	<p><b>ACT &amp; SAT</b>  <a href="#">TN ACT Information &amp; Resources</a>  <a href="#">ACT College &amp; Career Readiness Mathematics Standards</a>  <a href="#">ACT Academy</a>  <a href="#">SAT Connections</a>  <a href="#">SAT Practice from Khan Academy</a></p>	