Mathematics
Grade 6: Year at a Glance
2019-2020

Q1		Q2		Q3		Q4	
Module 1 **Aug. 6 – Sept. 20**	**Module 2** **Sept. 23-Oct. 11**	**Module 3** **Oct. 21-Nov. 22**	**Module 4** **Dec. 1-Jan. 31**	**Module 5** **Feb. 3- March 4**	**Module 6** **March 5 – April 10** **TNReady April 13-May 8**	**After Testing** **May 8 – May 24**
Ratios and Unit Rates	**Arithmetic Operations Including Division of Fractions**	**Rational Numbers**	**Expressions and Equations**	**Area, Surface Area & Volume**	**Statistics**	**Lessons from Modules 1, 2, 4, 5 & 6**
6.RP.1	6.NS.1	6.NS.5	6.EE.1	6.G.1	6.SP.1	6.RP.3
6.RP.2	6.NS.2	6.NS.6	6.EE.2	6.G.2	6.SP.2	6.NS.4
6.RP.3	6.NS.4	6.NS.7	6.EE.3	6.G.3	6.SP.3	6.EE.2c
	6.NS.4	6.NS.8	6.EE.4	6.G.4	6.SP.4	6.EE.6
			6.EE.5		6.SP.5	6.EE.7
			6.EE.6			6.G.2
			6.EE.7			6.G.4
			6.EE.8			6.SP.2
			6.EE.9			6.SP.3
						6.SP.4
						6.SP.5
	Major Content		**Supporting Content**			

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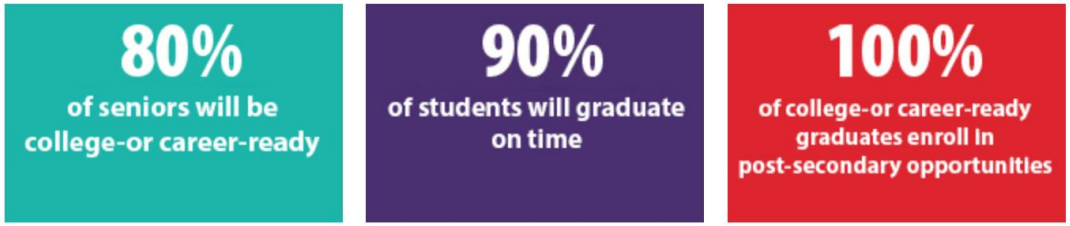
Introduction

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**.

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

Tennessee Mathematics Content Standards

Standards for Mathematical Practice

Literacy Sckills for Mathematical Proficency

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How to Use the Curriculum Map

Overview
An overview is provided for each quarter and includes the topics, focus standards, intended rigor of the standards and foundational skills needed for success of those standards.

Your curriculum map contains four columns that each highlight specific instructional components. Use the details below as a guide for information included in each column.

Tennessee State Standards
TN State Standards are located in the left column. Each content standard is identified as Major Content or Supporting Content. A key can be found at the bottom of the map.

Content
This section contains learning objectives based upon the TN State Standards. Best practices tell us that clearly communicating measurable objectives lead to greater student understanding. Additionally, essential questions are provided to guide student exploration and inquiry.

Instructional Support
District and web-based resources have been provided in the Instructional Support column. You will find a variety of instructional resources that align with the content standards. The additional resources provided should be used as needed for content support and scaffolding.

Vocabulary and Fluency
The inclusion of vocabulary serves as a resource for teacher planning and for building a common language across K-12 mathematics. One of the goals for Tennessee State Standards is to create a common language, and the expectation is that teachers will embed this language throughout their daily lessons. In order to aid your planning, we have also included a list of fluency activities for each lesson. It is expected that fluency practice will be a part of your daily instruction. (Note: Fluency practice is not intended to be speed drills, but rather an intentional sequence to support student automaticity. Conceptual understanding must underpin the work of fluency.

Instructional Calendar
As a support to teachers and leaders, an instructional calendar is provided ***as a guide***. Teachers should use this calendar for effective planning and pacing, and leaders should use this calendar to provide *support* for teachers. Due to variances in class schedules and differentiated support that may be needed for students' adjustment to the calendar may be required.

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Grade 6 Quarter 2 Overview

Module 3: Rational Numbers
Module 4: Expressions & Equations

The chart below includes the standards that will be addressed in this quarter, the type of rigor the standards address, and foundational skills needed for mastery of these standards. Consider using these foundational standards to address student gaps during intervention time as appropriate for students.

Grade Level Standard	Type of Rigor	Foundational Standards
6.NS.5	Conceptual Understanding	
6.NS.6	Conceptual Understanding	5.G.1
6.NS.7	Conceptual Understanding	
6.NS.8	Procedural Fluency & Application	5.G.2
6.EE.1	Procedural Fluency	5.NBT.2
6.EE.2	Procedural Fluency	5.OA.2, 5.OA.3
6.EE.3	Application	5.OA.2
6.EE.4	Conceptual Understanding	5.OA.2
Instructional Focus Document Grade 6		

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Module 3 Rational Numbers and the Coordinate Plane **Grade 6 Pacing and Preparation Guide** **(Allow approximately 5 weeks for instruction, review and assessment)**			
Domain: The Number System **Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers. ■ **6.NS.C.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ■ **6.NS.C.6a:** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself.	**Essential Questions:** • How are positive and/or negative numbers used in real-life situations? **Topic A Objectives** **Lesson 1: (6.NS.C.6a)** • Students extend their understanding of the number line, which includes zero and numbers to the right or above zero that are greater than zero and numbers to the left or below zero that are less than zero. • Students use positive integers to locate negative integers by moving in the opposite direction from zero. • Students understand that the set of integers includes the set of positive whole numbers and their opposites, as well as zero. They also understand that zero is its own opposite. **Lesson 2: (6.NS.C.5, 6.NS.C.6a)** • Students use positive and negative numbers to indicate a change (gain or loss) in elevation with a fixed reference point, temperature, and the balance in a bank account. • Students use vocabulary precisely when describing and representing situations involving integers; for example, an elevation of −10 feet is the same as 10 feet below the fixed reference point. • Students choose an appropriate scale for the number line when given a set of positive and negative numbers to graph.	**Topic A: Understanding Positive and Negative Numbers on the Number Line** **Topic A Teacher Toolbox Alignment:** **Lesson 12: *Understand Positive and Negative Numbers*** Integrating Teacher Toolbox Lessons with Eureka Math Lessons **Lesson 1** (The "Scaffolding" suggestions could be used instead of the Exploratory Challenge) **Lessons 2 & 3, combine** Suggestions for Combining: • Lesson 2 Examples 1 & 2 • Lesson 3 Example 1, Exploratory Challenge as HW/Project • Lesson 3 Exit Ticket **Continued below**	**Familiar Terms and Symbols for Module 3**: Coordinate Pair, Coordinate Plane, Fraction, Line of Symmetry, Ordered Pair, Origin, Quadrant, Symmetry, Whole Numbers, x-Axis, x-Coordinate, y-Axis, y-Coordinate **Vocabulary for Module 3 Topic A** Integer, Negative Number, Opposite, Positive Number, Rational Number

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: The Number System **Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers. ■ **6.NS.C.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ■ **6.NS.C.6a:** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself.	**Lesson 3**: **(6.NS.C.5, 6.NS.C.6a)** • Students use positive and negative numbers to indicate a change (gain or loss) in elevation with a fixed reference point, temperature, and the balance in a bank account. • Students use vocabulary precisely when describing and representing situations involving integers; for instance, an elevation of −10 feet is the same as 10 feet below the fixed reference point. • Students choose an appropriate scale for the number line when given a set of positive and negative numbers to graph.	**Topic A, cont'd** **Lessons 2 & 3, combine** Suggestions for Combining: • Lesson 2 Examples 1 & 2 • Lesson 3 Example 1, Exploratory Challenge as Class Project • Select Problem Set I\items from each lesson for HW • Lesson 3 Exit Ticket Optional Quiz for Topic A **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* TN Task Arc: Locating, Ordering and Finding... 6.NS.C.5 (Task 1 only) TN Task: Fun in the Ocean Illustrative Math: Integers on the Number Line 1 6.NS.6a	**Vocabulary for Module 3 Topic A** Integer, Negative Number, Opposite, Positive Number, Rational Number **Familiar Terms and Symbols for Module 3**: Coordinate Pair, Coordinate Plane, Fraction, Line of Symmetry, Ordered Pair, Origin, Quadrant, Symmetry, Whole Numbers, x-Axis, x-Coordinate, y-Axis, y-Coordinate
Domain: The Number System **Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers. ■ **6.NS.C.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	**Lesson 4: (6.NS.C.5, 6.NS.C.6a)** • Students understand that each nonzero integer, aa, has an opposite, denoted $-aa$, and that $-aa$ and aa are opposites if they are on opposite sides of zero and are the same distance from zero on the number line. • Students recognize the number zero is its own opposite. • Students understand that since all counting numbers are positive, it is not necessary to indicate such with a plus sign. **Lesson 5**: **(6.NS.C.5, 6.NS.C.6a)**	**Topic A, cont'd** **Lessons 4 & 5, Combine** Suggestions for combining: • Lesson 4 Classwork, Exercise 1, Example 1 • Lesson 5 Examples 1 & 2, Exercises 1-3 • Select Problem Set I\items from each lesson for HW • Exit Tickets from both lessons **Continued below**	**Vocabulary for Module 3 Topic A** Integer, Negative Number, Opposite, Positive Number, Rational Number **Familiar Terms and Symbols for Module 3**: Coordinate Pair, Coordinate Plane, Fraction, Line of Symmetry, Ordered Pair, Origin, Quadrant, Symmetry, Whole Numbers, x-Axis, x-Coordinate, y-Axis, y-Coordinate

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
■ **6.NS.C.6a:** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself.	• Students understand that, for instance, the opposite of −5 is denoted −(−5) and is equal to 5. In general, they know that the opposite of the opposite is the original number. • Students locate and position opposite numbers on a number line.		
Domain: The Number System **Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers. ■ **6.NS.C.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ■ **6.NS.C.6a:** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself.	**Lesson 6: (6.NS.C.5, 6.NS.C.6a)** • Students use number lines that extend in both directions and use 0 and 1 to locate integers and rational numbers on the number line. • Students know that the sign of a nonzero rational number is positive or negative, depending on whether the number is greater than zero (positive) or less than zero (negative), and use an appropriate scale when graphing rational numbers on the number line. • Students know that the opposites of rational numbers are similar to the opposites of integers. • Students know that two rational numbers have opposite signs if they are on different sides of zero and that they have the same sign if they are on the same side of zero on the number line.to model addition and subtraction of rational number.	**Topic A, cont'd** **Lesson 6**	**Vocabulary for Module 3 Topic A** Integer, Negative Number, Opposite, Positive Number, Rational Number **Familiar Terms and Symbols for Module 3**: Coordinate Pair, Coordinate Plane, Fraction, Line of Symmetry, Ordered Pair, Origin, Quadrant, Symmetry, Whole Numbers, x-Axis, x-Coordinate, y-Axis, y-Coordinate

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: The Number System **Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers. ■ **6.NS.C.6c:** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ■ **6.NS.7:** Understand ordering and absolute value of rational numbers. ■ **6.NS.C.7a:** Interpret statements of inequality as statements about the relative position of two numbers on a number line. ■ **6.NS.C.7b:** Write, interpret, and explain statements of order for rational numbers in real-world contexts. ■ **6.NS.C.7c:** Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute as magnitude for a positive or negative quantity in a real-world situation. ■ **6.NS.C.7d:** Distinguish comparisons of absolute value from statements about order.	**Essential Questions** • What is an absolute value and how is it used in the real world? • How does absolute value relate to distance on a number line? **Topic B Objectives:** **Lesson 7 (6.NS.6a, 6.NS.C.7a, 6.NS.C.7b)** • Students write, interpret, and explain statements of order for rational numbers in the real world. • Students recognize that if $aa < bb$, then $-a > -b$ because a number and its opposite are equal distances from zero. Students also recognize that moving along the horizontal number line to the right means the numbers are increasing. **Lesson 9 (6.NS.6a, 6.NS.C.7a, 6.NS.C.7b)** • Students compare and interpret rational numbers' order on the number line, making statements that relate the numbers' location on the number line to their order. • Students apply their prerequisite knowledge of place value, decimals, and fractions to compare integers and other rational numbers. • Students relate integers and other rational numbers to real-world situations and problems.	**Topic B: Order and Absolute Value** **Topic B Teacher Toolbox Alignment** **Lesson 13: *Absolute Value and Ordering Numbers*** Integrating Teacher Toolbox Lessons with Eureka Math Lessons **Lesson 7** **Lesson 8 Omit** **Lesson 9** **Continued below**	**Vocabulary for Module 3 Topic B** Absolute Value, Magnitude **Familiar Terms and Symbols for Module 3**: Coordinate Pair, Coordinate Plane, Fraction, Line of Symmetry, Ordered Pair, Origin, Quadrant, Symmetry, Whole Numbers, x-Axis, x-Coordinate, y-Axis, y-Coordinate

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: The Number System **Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers. ■ **6.NS.C.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. ■ **6.NS.C.6a:** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself. ■ **6.NS.7:** Understand ordering and absolute value of rational numbers. ■ **6.NS.C.7a:** Interpret statements of inequality as statements about the relative position of two numbers on a number line. ■ **6.NS.C.7b:** Write, interpret, and explain statements of order for rational numbers in real-world contexts.	**Lesson 10: (6.NS.6a, 6.NS.C.7a, 6.NS.C.7b)** • Students write and explain inequality statements involving rational numbers. • Students justify inequality statements involving rational numbers. **Lesson 11: (6.NS.6a, 6.NS.C.7)** • Students understand the absolute value of a number as its distance from zero on the number line. • Students use absolute value to find the magnitude of a positive or negative quantity in a real-world situation. **Lesson 12:** (**6.NS.C.7)** • Students understand that the order of positive numbers is the same as the order of their absolute values. • Students understand that the order of negative numbers is the opposite order of their absolute values. • Students understand that negative numbers are always less than positive numbers. **Lesson 13: (6.NS.C.5, 6.NS.C.7)** • Students apply understanding of order and absolute value when examining real-world scenarios	**Topic B, cont'd** **Lesson 10** **Lesson 11** **Lesson 12** **Lesson 13** Optional Module 3 Topic B Quiz **Mid-Module 3 Assessment & Review of Assessment** ***(Complete by 11/7/19)*** Optional Module 3 MM Assessment **Reminder:** *It is recommended that teachers begin preparing for Module 4 on 11/5/19.* **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* TN Task Arc: Locating, Ordering & Finding Distance Between Positive & Negative Numbers Illustrative Math: Plotting Points in the Coordinate Plane 6.NS.6c Illustrative Math: 6.NS.7 Tasks	**Vocabulary for Module 3 Topic B** Absolute Value, Magnitude **Familiar Terms and Symbols for Module 3**: Coordinate Pair, Coordinate Plane, Fraction, Line of Symmetry, Ordered Pair, Origin, Quadrant, Symmetry, Whole Numbers, x-Axis, x-Coordinate, y-Axis, y-Coordinate

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: The Number System **Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers. ■ **6.NS.C.6b:** Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. ■ **6.NS.C.6c:** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ■ **6.NS.C.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	**Essential Question(s):** • How do you locate points in the coordinate plane? • How can you find distances between points on the same vertical or horizontal line? **Topic C Objectives:** **Lesson 14: (6.NS.C.6c , 6.NS.C.8)** • Students use ordered pairs to name points in a grid and to locate points on a map. • Students identify the first number in an ordered pair as the first coordinate and the second number as the second coordinate. **Lesson15: (6.NS.C.6b , 6.NS.C.8)** • Students extend their understanding of the coordinate plane to include all four quadrants and recognize that the axes (identified as the x-axis and y-axis) of the coordinate plane divide the plane into four regions called quadrants (that are labeled from first to fourth and are denoted by roman numerals). • Students identify the origin and locate points other than the origin, which lie on an axis. • Students locate points in the coordinate plane that correspond to given ordered pairs of integers and other rational numbers.	**Topic C: Rational Numbers and the Coordinate Plane** **Topic C Teacher Toolbox Alignment:** **Lesson 14: *The Coordinate Plane*** Integrating Teacher Toolbox Lessons with Eureka Math Lessons **Lesson 14** **Lesson 15** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* TN Task: "Coordinating" with the Rug Illustrative Math: Reflecting Points over Coordinate axes Illustrative Math: Plotting Points in the Coordinate Plane Illustrative Math: Distances Between Points Task **Continued below**	**Vocabulary for Module 3 Topic C:** Absolute Value, Quadrant, First coordinate, Second coordinate **Familiar Terms and Symbols for Module 3**: Coordinate Pair, Coordinate Plane, Fraction, Line of Symmetry, Ordered Pair, Origin, Quadrant, Symmetry, Whole Numbers, x-Axis, x-Coordinate, y-Axis, y-Coordinate

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: The Number System **Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers. ■ **6.NS.C.6b:** Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. ■ **6.NS.C.6c:** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ■ **6.NS.C.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	**Lessons 16: (6.NS.C.6b , 6.NS.C.8)** • Students understand that two numbers are said to differ only by signs if they are opposites of each other. • Students recognize that when two ordered pairs differ only by the sign of one or both of the coordinates, then the locations of the points are related by reflections across one or both axes. **Lessons 17: (6.NS.C.6c , 6.NS.C.8)** • Students draw a coordinate plane on graph paper in two steps: (1) Draw and label the horizontal and vertical axes; (2) Mark the number scale on each axis. • Given some points as ordered pairs, students make reasonable choices for scales on both axes and locate and label the points on graph paper.	**Topic C, cont'd** **Lesson 16** **Lesson 17** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* TN Task: "Coordinating" with the Rug Illustrative Math: Reflecting Points over Coordinate axes Illustrative Math: Plotting Points in the Coordinate Plane Illustrative Math: Distances Between Points Task **Continued below**	**Vocabulary for Module 3 Topic C:** Absolute Value, Quadrant **Familiar Terms and Symbols for Module 3**: Coordinate Pair, Coordinate Plane, Fraction, Line of Symmetry, Ordered Pair, Origin, Quadrant, Symmetry, Whole Numbers, x-Axis, x-Coordinate, y-Axis, y-Coordinate
Domain: The Number System **Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers. ■ **6.NS.C.6c:** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	**Lesson 18: (6.NS.C.6c, 6.NS.C.7c, 6.NS.C.8)** • Students compute the length of horizontal and vertical line segments with integer coordinates for end points in the coordinate plane by counting the number of units between end points and using absolute value. **Lesson 19: (6.NS.C.6c, 6.NS.C.7c,6.NS.C.8)** • Students solve problems related to the distance between points that lie on the same horizontal or vertical line.	**Topic C, cont'd** **Lesson 18** **Lesson 19** Optional Quiz for Module 3 Topic C **End of Module 3 Assessment & Review of Assessment** ***(Complete by 11/21/19)*** Optional Module 3 EOM Assessment	**Vocabulary for Module 3 Topic C:** Absolute Value, Quadrant **Familiar Terms and Symbols for Module 3**: Coordinate Pair, Coordinate Plane, Fraction, Line of Symmetry, Ordered Pair, Origin, Quadrant, Symmetry, Whole Numbers, x-Axis, x-Coordinate, y-Axis, y-Coordinate

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
■ **6.NS.C.7c:** Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute as magnitude for a positive or negative quantity in a real-world situation. ■ **6.NS.C.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	• Students use the coordinate plane to graph points, line segments, and geometric shapes in the various quadrants and then use the absolute value to find the related distances.	**Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* TN Task: "Coordinating" with the Rug Illustrative Math: Reflecting Points over Coordinate axes Illustrative Math: Plotting Points in the Coordinate Plane Illustrative Math: Distances Between Points Task	

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Module 4 Expressions and Equations

Grade 6 Pacing and Preparation GuideGrade 6 Pacing and Preparation Guide

(Allow approximately 3 weeks for instruction, review and assessment)

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Expressions and Equations **Cluster:** Apply and extend previous understandings of arithmetic to algebraic expressions. ■ **6.EE.A.3**: Apply the properties of operations to generate equivalent expressions.	**Essential Question(s):** • How can order of operations be applied to a mathematical expression? **Topic A Objectives** **Lesson 1**: • Students build and clarify the relationship of addition and subtraction by evaluating identities such as $w - x + x = w$ and $w + x - x = w$. **Lesson 2:** • Students build and clarify the relationship of multiplication and division by evaluating identities such as $(a \div b) \cdot b = a$ and $a \cdot b \div b = a$. **Lesson 3**: • Students build and clarify the relationship of multiplication and addition by evaluating identities such as $3 \cdot g = g + g + g$. **Lesson 4:** • Students build and clarify the relationship of division and subtraction by determining that $12 \div x = 4$ means $12 - x - x - x - x = 0$.	**Topic A: Relationships of the Operations** **Topic A Teacher Toolbox Alignment:** **Lesson 17: *Equivalent Expressions*** Integrating Teacher Toolbox Lessons with Eureka Math Lessons **Lessons 1 & 2, Combine** Suggestions for combining • Lessons 1 &2 Opening Exercises • Lesson 1 Discussion, Exercises 2, 4 & 5 • Lesson 2 Exploratory Challenge • Lessons 1 & 2 Selected Problem Items • Exit Tickets from both lessons **Lessons 3 & 4, Combine** Suggestions for combining • Lesson 3 Discussion, Exercises 2, 4, & 5 • Lesson 4 Discussion, Exercise 2 • Lesson 3 Exit Ticket # 2 & 4; Lesson 4 Exit Ticket #1 • Homework: Lessons 3 & 4 Problem Sets Optional Quiz for Module 4 Topic A **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Tennessee PBS Stations: Video Lesson Illustrative Math: Anna in D.C. 6.EE.3	**Familiar Terms and Symbols for Module 4**: Distribute, Expand, Factor, Number Sentence, Product, Properties of Operations (distributive, commutative, associative), Quotient, Sum, Term, True or False Number Sentence, Variable or Unknown Number **Vocabulary for Module 4 Topic A:** Equation, Equivalent Expressions, Expression, Linear Expression, Variable

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Expressions and Equations **Cluster:** Apply and extend previous understandings of arithmetic to algebraic expressions. ■ **6.EE.A.1:** Write and evaluate numerical expressions involving whole-number exponents. ■ **6.EE.A.2c**: Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).	**Essential Questions** • How do arithmetic properties contribute to algebraic understanding? • How do the order of operations and properties help simplify and evaluate algebraic expressions? **Topic B Objectives:** **Lesson 5:** • Students discover that $3x = x + x + x$ is not the same thing as x^3, which is $x \cdot x \cdot x$. • Students understand that a base number can be represented with a positive whole number, positive fraction, or positive decimal and that for any number a, a^m is defined as the product of m factors of a. The number a is the base, and m is called the *exponent* or *power* of a. **Lesson 6** • Students evaluate numerical expressions. They recognize that in the absence of parentheses, exponents are evaluated first.	**Topic B: Special Notations of Operations** **Topic B Teacher Toolbox Alignment:** **Lesson15: *Numerical Expressions*** Integrating Teacher Toolbox Lessons with Eureka Math Lessons **Lesson 5** (Allow 2 days for this lesson) **Lesson 6** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Exponent Experimentation 1 Illustrative Math: Exponent Experimentation 2	**Vocabulary for Module 4 Topic B:** Equivalent Expressions, Exponential Notation for Whole Number Exponents, Value of a Numerical Expression, Variable
Domain: Expressions and Equations **Cluster:** Apply and extend previous understandings of arithmetic to algebraic expressions. ■ **6.EE.A.2c:** Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving	**Essential Question(s):** • What strategies can be used to determine if two expressions are equivalent? **Topic C Objectives:** **Lesson 8:** • Students understand that a letter in an expression or an equation can represent a	**Topic C: Replacing Letters and Numbers** **Topic C Teacher Toolbox Alignment:** **Lesson16*: Algebraic Expressions*** Integrating Teacher Toolbox Lessons with Eureka Math Lessons **Lesson 7 Omit**	**Vocabulary for Module 4 Topic C:** Equivalent Expressions, Value of a Numerical Expression, Variable

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whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). ■ **6.EE.A.4**: Identify when expressions are equivalent (i.e., when the expressions name the same number regardless of which value is substituted into them). For example, the expression 5b + 3b is equivalent to (5 +3) b, which is equivalent to 8b.	number. When that number is replaced with a letter, an expression or an equation is stated. • Students discover the commutative properties of addition and multiplication, the additive identity property of zero, and the multiplicative identity property of one. They determine that $g \div 1 = g$, $g \div g = 1$, and $1 \div g = 1/g$	**Lesson 8** **Additional Resources**: *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Equivalent Expressions Illustrative math: Watch out for Parenthesis Illustrative Math: Rectangle Perimeter	
Domain: Expressions and Equations **Cluster:** Apply and extend previous understandings of arithmetic to algebraic expressions. ■ **6.EE.A.2.a:** Write expressions that record operations with numbers and with letters standing for numbers. "Subtract y from 5" as 5-y ■ **6.EE.A.2b:** Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. ■ **6.EE.A.3:** Apply the properties of operations (including, but not limited to, commutative, associative, and distributive properties) to generate equivalent expressions. The distributive property is prominent here. For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y. ■ **6.EE.A.4:** Identify when expressions are equivalent (i.e., when the expressions	**Essential Question(s):** • How can order of operations be applied to a mathematical expression? • How do we generalize numerical relationships and express mathematical ideas using expressions and equations? **Topic D Objectives:** **Lesson 9:** • Students write expressions that record addition and subtraction operations with numbers. **Lesson 10:** • Students identify parts of an expression using mathematical terms for multiplication. They view one or more parts of an expression as a single entity. **Lesson 11:** • Students model and write equivalent expressions using the distributive property. They move from expanded form to factored form of an expression. **Lesson 12:** • Students model and write equivalent expressions using the distributive	**Topic D: Expanding, Factoring, and Distributing Expressions** **Topic D Teacher Toolbox Alignment:** **Lesson17: *Equivalent Expressions*** Integrating Teacher Toolbox Lessons with Eureka Math Lessons **Lessons 9 & 10, Combine** Suggestions for combining • Lesson 9 Examples; Lesson 10 Examples 1-3 • Lesson 9 Exercises (odd numbers) • Lesson 10 Problem Set • Lessons 9 & 10 Selected Exit Ticket Items **Lesson 11** **Lesson 12** **Lessons 13 & 14, Combine** **There are <u>two</u> suggested options for combining Lessons 13-14:** **1. Combine Lessons 13-14** • **Lesson 13, Examples 1–3, All Exercises** • **Lesson 14 Example 1** • **Exit Ticket, and Problem Set**	**Vocabulary for Module 4 Topic D:** Equivalent Expressions, Expression, Linear Expression, Number Sentence, Numerical Expression, Value of a Numerical Expression, Variable

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name the same number regardless of which value is substituted into them). For example, the expression 5b + 3b is equivalent to (5 +3) b, which is equivalent to 8b.	property. They move from the factored form to the expanded form of an expression. **Lessons 13-14:** • Students write numerical expressions in two forms, "dividend÷divisor" and "dividend/divisor", and note the relationship between the two. **Lessons 16-17** • Students write algebraic expressions that record all operations with numbers and/or letters standing for the numbers.	**from Lesson 14.** **2. Do all of Lesson 13 and use information from Lesson 14 and make anchor charts for students to reference.** **Lesson 15 Omit** **Lessons 16 & 17, Combine** Suggestions for combining • Lesson 16 Opening Exercise in conjunction with modeling how the information is written as an expression • Lesson 16 Exercises 1-10 (whole group) • Lesson 17 Exercises (stations or group classwork practice) • Lesson 16 or 17 Exit Ticket **Optional Quiz for Module 4 Topic D** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* TN Task Arc: Equivalent Expressions 6.EE.3 & 6.EE.4 Tennessee PBS Stations: Video Lesson 6.EE.A.3 Illustrative Math Tasks: 6.EE.2	

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RESOURCE TOOLKIT The Resource Toolkit provides additional support for comprehension and mastery of grade-level skills and concepts. While some of these resources are imbedded in the map, the use of these categorized materials can assist educators with maximizing their instructional practices to meet the needs of all students.		
Textbook Resources www.greatminds.org Grade 6 Remediation Guides Remediation Tools	**Standards Support** TN Math Standards Gr. 6 Instructional Focus Document Achieve the Core Edutoolbox	**Videos** Learn Zillion Khan Academy Embarc Online
Calculator Activities TI-83 & TI-84 Activities for Middle Grades CASIO Activities	**Interactive Manipulatives** Glencoe Virtual Manipulatives National Library of Interactive Manipulatives **SEL Resources** **SEL Connections with Math Practices** **SEL Core Competencies** The Collaborative for Academic, Social, and Emotional Learning (CASEL)	**Additional Sites** PBS Learning Grade 6 Flip Book (This book contains valuable resources that help develop the intent, the understanding and the implementation of the state standards.) https://academy.act.org/ https://opened.com https://www.freckle.com/

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Curriculum and Instruction – Mathematics

Quarter 2 **Grade 6**

October 2019

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
	30	1	2	3	4	**Flex Day Options Include:** ***Standard-*** Suggested standard(s) to review for the day (*-denotes a Power Standard) ***Pacing*** – Use this time to adjust instruction to stay on pace. ***Other-*** This includes assessments, review, re-teaching, etc.
	7	8	9	10	11 *½ day students* *Quarter 1 Ends*	
	14	15	16	17	18	
	Fall Break					
Module 3 Topic A	21 *Quarter 2 Begins* Module 3 Lesson 1	21 Module 3 Lessons 2-3, combined	23 Module 3 Lessons 4-5, combined	24 Module 3 Lesson 6	25 Flex Day Options **6.NS.C.5** **6.NS.C.6** **Pacing** **Other**	
Module 3 Topic B	28 Module 3 Lesson 7	29 Module 3 Lesson 9	30 Module 3 Lesson 10	31 Module 3 Lesson 11 *Halloween*	1	

Note: Please use this suggested pacing as a guide. It is understood that teachers may be up to 1 week ahead or 1 week behind depending on their individual class needs.

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Curriculum and Instruction – Mathematics

Quarter 2 **Grade 6**

November 2019

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
					1 Flex Day Options **6.NS.C.5** **6.NS.C.6** **Pacing** **Other**	**Flex Day Options Include:** ***Standard***- Suggested standard(s) to review for the day (*-denotes a Power Standard) ***Pacing*** – Use this time to adjust instruction to stay on pace. ***Other***- This includes assessments, review, re-teaching, etc.
Module 3 Topic B	**4** Module 3 Lesson 12	**5** Module 3 Lesson 13	**6** **Mid-Module 3 Assessment & Review of Assessment**	**7** **Mid-Module 3 Assessment & Review of Assessment**	**8** *1/2 day students* Flex Day Options **6.NS.C.6** **6.NS.C.7** **Pacing** **Other**	
Module 3 Topic C	**11** ***Veteran's Day***	**12** Module 3 Lesson 14	**13** Module 3 Lesson 15	**14** Module 3 Lesson 16	**15** Module 3 Lesson 17	
Module 3 Topic C	**18** Module 3 Lesson 18	**29** Module 3 Lesson 19	**20** **End of Module 3 Assessment & Review of Assessment**	**21** **End of Module 3 Assessment & Review of Assessment**	**22** Flex Day Options **6.NS.C.6** **6.NS.C.8** **Pacing** **Other**	
	25 **Teacher PD FLEX Day**	**26** **Teacher PD FLEX Day**	**27** Thanksgiving Break	**28**	**29**	

Note: Please use this suggested pacing as a guide. It is understood that teachers may be up to 1 week ahead or 1 week behind depending on their individual class needs.

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Curriculum and Instruction – Mathematics

Quarter 2 **Grade 6**

December 2019

Suggested Lessons for the Week	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
Module 4 Topic A Topic B	**2** Module 4 Lessons 1-2, combined	**3** Module 4 Lessons 3-4, combined	**4** Module 4 Lesson 5	**5** Module 4 Lesson 5	**6** Flex Day Options **6.NS.C.6** **6.NS.C.8** **6.EE.A.3** **Pacing** **Other**	**Flex Day Options Include:** ***Standard***- Suggested standard(s) to review for the day (*-denotes a Power Standard) ***Pacing*** – Use this time to adjust instruction to stay on pace. ***Other***- This includes assessments, review, re-teaching, etc.
Module 4 Topic C Topic D	**9** Module 4 Lesson 6 **Start preparing for Module 5**	**10** Module 4 Lesson 8	**11** Module 4 Lessons 9-10, combined	**12** Module 4 Lesson 11	**13** Flex Day Options **6.EE.A.2** **6.EE.A.3** **6.EE.A.4** **Pacing** **Other**	
Module 4 Topic D Module 4 Topic E Mid-Module or Topic Assessment	**16** Module 4 Lesson 12	**17** Module 4 Lessons 13-14, combined	**18** Module 4 Lessons 16-17, combined	**19** **Mid-Module 4 or Topic Assessment**	**20** *½ day students* *Quarter 2 Ends* Flex Day Options **6.EE.A.2** **6.EE.A.3** **6.EE.A.4** **Pacing** **Other**	
	23 Winter Break	**24**	**25**	**26**	**27**	
	30 Winter Break	**31**	1	2	3	

Note: Please use this suggested pacing as a guide. It is understood that teachers may be up to 1 week ahead or 1 week behind depending on their individual class needs.

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