Curriculum and Instruction – Mathematics

Quarter 3 Grade 6

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 9 – 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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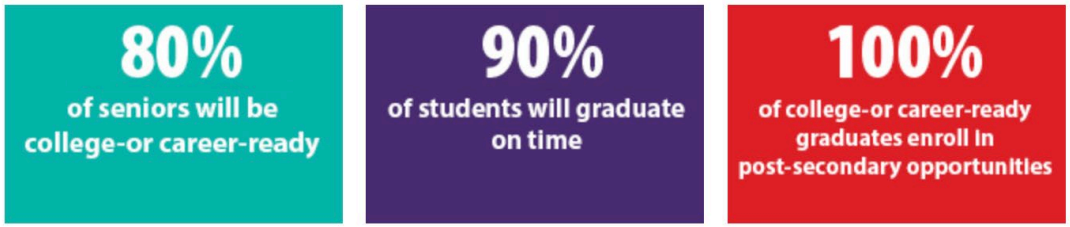
Introduction

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 3 Overview

Module 4: Expressions & Equations
Module 5: Area, Surface Area (SA), & Volume
Module 6: Statistics

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.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
🔌 6.EE.5	Conceptual Understanding, Procedural Fluency	5.OA.2, 5.OA.3, 6.EE.1
6.EE.6	Conceptual Understanding; Application	5.OA.2, 5.OA.3, 6.EE.1
6.EE.7	Procedural Fluency & Application	5.NF.1, 5.NF.4, 6.NS.1
6.EE.8	Conceptual Understanding & Application	6.NS.6, 6.NS.7
🔌 6.EE.9	Conceptual Understanding & Application	5.OA.3
6.G.1	Procedural Fluency; Application	5.NF.4
6.G.2	Conceptual Understanding, Procedural Fluency & Application	5.MD.5
6.G.3	Procedural Fluency; Application	5.G.2
6.G.4	Conceptual Understanding	5.MD.C.5
6.SP.1	Conceptual Understanding	5.MD.B.2
6.SP.2	Conceptual Understanding	5.MD.B.2
6.SP.4	Procedural Fluency	5.MD.B.2
6.SP.5	Conceptual Understanding	
🔌 **Indicates a Power Standard based on the 2017-18 TN Ready Assessment.**		
Instructional Focus Document Grade 6		

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Module 4 Expressions and Equations, Cont'd **Grade 6 Pacing and Preparation Guide** **(Allow approximately 4 weeks for instruction, review and assessment)**			
Domain: Expressions and Equations **Cluster:** Apply and extend previous understandings of arithmetic to algebraic expressions. ■ **6.EE.A.2** Write, read, and evaluate expressions in which letters stand for numbers. ■ **6.EE.A.2a**: Write expressions that record operations with numbers and with letters standing for numbers. "Subtract y from 5" as 5-y ■ **6.EE.A.2.c**: 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). **Cluster:** Reason about and solve one-variable equations and inequalities. ■ **6.EE.B.6:** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	**Essential Question(s):** • How do arithmetic properties contribute to algebraic understanding? • How do the order of operations and properties help simplify and evaluate algebraic expressions? • In what ways can you reason and solve one-variable equations and inequalities? **Topic F Objectives:** **Lesson 18: (6.EE.A.2a, 6.EE.A.2c)** • Students use variables to write expressions involving addition and subtraction from real-world problems. • Students evaluate these expressions when given the value of the variable. **Lesson 19: (6.EE.2a, 6.EE.A.2b, 6.EE.A.2c, 6.EE.B.6)** • Students develop expressions involving addition and subtraction from real-world problems. • Students evaluate these expressions for given values.	**Topic F: Writing and Evaluating Expressions and Formulas** **Topic F Teacher Toolbox Alignment:** ***Lessons 16: Algebraic Expressions*** ***Lesson 17: Equivalent Expressions*** Integrating Teacher Toolbox Lessons **Lesson 18** **Lesson 19** **Continued below**	**Vocabulary for Module 4 Topic F** Exponential Notation for Whole Number Exponents **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

■ Major Work ➢ Supporting Work

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.2** Write, read, and evaluate expressions in which letters stand for numbers. ■ **6.EE.A.2a**: Write expressions that record operations with numbers and with letters standing for numbers. "Subtract y from 5" as 5-y ■ **6.EE.A.2.c**: 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). **Cluster:** Reason about and solve one-variable equations and inequalities. ■ **6.EE.B.6:** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	**Lesson 20:6.EE.2a, 6.EE.A.2b, 6.EE.A.2c, 6.EE.B.6)** • Students develop expressions involving multiplication and division from real-world problems. • Students evaluate these expressions for given values. **Lesson 22: 6.EE.2a, 6.EE.A.2b, 6.EE.A.2c, 6.EE.B.6)** • Students evaluate and write formulas involving exponents for given values in real-world problems.	**Topic F, cont'd** **Lesson 20** **Lesson 21 Omit** **Lesson 22** **Optional Quiz for M4 Topic F** **Reminder:** *It is recommended that teachers begin preparing for Module 5 by 1/13/20.* **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Firefighter Allocation Illustrative Math: Families of Triangles 6.EE.C.2 Assessment Tasks for 6.EE.A.2	**Vocabulary for Module 4 Topic F** Exponential Notation for Whole Number Exponents

■ Major Work ➢ Supporting Work

Curriculum and Instruction – Mathematics

Quarter 3 — Grade 6

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Expressions and Equations **Cluster:** Reason about and solve one-variable equations and inequalities. ■ **6.EE.B.5:** Understand solving an equation or inequality is carried out by determining if any of the values from a given set make the equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. ■ **6.EE.B.6:** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. ■ **6.EE.B.7:** Solve real-world and mathematical problems by writing and solving one-step equations of the form x + p = q and px = q for cases in which p, q, and x are all nonnegative rational numbers.	**Essential Questions(s):** • How can you determine if values from a specified set, if any, make an equation or inequality true? **Topic G Objectives:** **Lesson 23: (6.EE.B.5, 6.EE.B.6)** • Students explain what the equality and inequality symbols including =, <, >, ≤, and ≥ represent. They determine if a number sentence is true or false based on the given symbol. **Lesson 24: (6.EE.B.5, 6.EE.B.6)** • Students identify values for the variables in equations and inequalities that result in true number sentences. • Students identify values for the variables in equations and inequalities that result in false number sentences. **Lesson 25: (6.EE.B.5, 6.EE.B.6)** • Students learn the definition of solution in the context of placing a value into a variable to see if that value makes the equation true. **Lesson 26: (6.EE.B.5, 6.EE.B.6, 6.EE.B.7)** • Students solve one-step equations by relating an equation to a diagram. • Students check to determine if their solutions make the equations true. **Lesson 27: (6.EE.B.5, 6.EE.B.6, 6.EE.B.7)** • Students solve one-step equations by relating an equation to a diagram. • Students check to determine if their solutions make the equations true.	**Topic G: Solving Equations** **Topic G Teacher Toolbox Alignment:** ***Lessons 18: Understand Solutions to Equations*** ***Lesson 19: Solve Equations*** Integrating Teacher Toolbox Lessons **Lesson 23-24, Combine** Suggestions for combining • Lesson 23 - Opening exercise, Example 1, Exercises 1-10 • Lesson 24 - Example 1, Exercises 1-12 • Lesson 23 Exit Ticket #1 & 3; Lesson 24 Exit Ticket # 1, 2, & 5 **Lesson 25** **Lesson 26** **Lesson 27** **Lesson 28 Omit** **Lesson 29 Omit** **Optional Quiz for M4 Topic G** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Log Ride Illustrative Math: Exponent Experimentation 3 Illustrative Math: Morning Walk Performance Assessment Task: Boxes 6.EE.B.4 & 6.EE.B.5	**Vocabulary for Module 4 Topic G** Truth Values of a Number Sentence Equation Solution of an Equation

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Expressions and Equations **Cluster:** Reason about and solve one-variable equations and inequalities. ■ **6.EE.B.5:** Understand solving an equation or inequality is carried out by determining if any of the values from a given set make the equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. ■ **6.EE.B.6**: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. ■ **6.EE.B.7:** Solve real-world and mathematical problems by writing and solving one-step equations of the form x + p = q and px = q for cases in which p, q, and x are all nonnegative rational numbers. **Cluster:** Represent and analyze quantitative relationships between dependent and independent variables. ■ **6.EE.C.9**: Use variables to represent two quantities in a real-world problem that change in relationship to one another. For example, Susan is putting money in her savings account by depositing a set amount each week (50). Represent her savings account balance with respect to the number of weekly deposits (s = 50w,	**Essential Question(s):** • How can you write and evaluate an expression that represents a real-life problem? • How can you show that inequalities can have infinitely many solutions? • In what ways can you show the relationship between dependent and independent variables? **Topic H Objectives:** **Lesson 31: (6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.EE.C.9)** • Students analyze an equation in two variables to choose an independent variable and a dependent variable. • Students determine whether or not the equation is solved for the second variable in terms of the first variable or vice versa. They then use this information to determine which variable is the independent variable and which is the dependent variable. • Students create a table by placing the independent variable in the first row or column and the dependent variable in the second row or column. They compute entries in the table by choosing arbitrary values for the independent variable (no constraints) and then determine what the dependent variable must be.	**Topic H: Applications of Equations** **Topic H Teacher Toolbox Alignment:** ***Lessons 20: Solve Inequalities*** ***Lesson 21: Dependent and Independent Variables*** Integrating Teacher Toolbox Lessons **Teacher Toolbox Lesson 21** **Lesson 30 Skip and do after TNReady** **Lesson 31** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Chocolate Bar Sales: 6.EE.C.9 **Continued below**	**Vocabulary for Module 4 Topic H** Truth Values of a Number Sentence Equation Solution of an Equation

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
illustrating the relationship between balance amount s and number of weeks w). **a.** Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. **b.** Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.			

■ Major Work ➢ Supporting Work

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Expressions and Equations **Cluster:** Reason about and solve one-variable equations and inequalities. ■ **6.EE.B.5:** Understand solving an equation or inequality is carried out by determining if any of the values from a given set make the equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. ■ **6.EE.B.6**: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. ■ **6.EE.B.8**: Interpret and write an inequality of the form x > c or x < c which represents a condition or constraint in a real-world or mathematical problem. Recognize that inequalities have infinitely many solutions; represent solutions of inequalities on number line diagrams.	**Lesson 33: (6.EE.B.5, 6.EE.B.6, 6.EE.B.8)** • Students understand that an inequality with numerical expressions is either true or false. It is true if the numbers calculated on each side of the inequality sign result in a correct statement and is false otherwise. • Students understand solving an inequality is answering the question of which values from a specified set, if any, make the inequality true. **Lesson 34: (6.EE.B.5, 6.EE.B.6, 6.EE.B.8)** • Students recognize that inequalities of the form $x < c$ and $x > c$, where x is a variable and c is a fixed number, have infinitely many solutions when the values of x come from a set of rational numbers.	**Lesson 32 Omit** **Lesson 33-34, Combine** Suggestions for combining • Lesson 33 – Examples 1-2 • Lesson 34 – Examples 1-3, Exercises 1-5, Exit Ticket; Problem Set (HW) Optional Quiz for M4 Topic H **End-of-Module 4 Assessment & Review of Assessment** *(Complete by 1/30/20)* Optional M4 EOM Assessment **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* TN Task Ark: Exploring Expressions and Equations (6.EE.8 tasks) Illustrative Math: Fishing Adventures 1	**Vocabulary for Module 4 Topic H** Truth Values of a Number Sentence Equation Solution of an Equation

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Module 5 Area, Surface Area and Volume Problems **Grade 6 Pacing and Preparation Guide** **(Allow approximately 4 weeks for instruction, review and assessment)**			
Domain: Geometry **Cluster:** Solve real-world and mathematical problems involving area, surface area and volume. ➢ **6.G.A.1**: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; know and apply these techniques in the context of solving real-world and mathematical problems.	**Essential Question(s):** • How can you find the area of composite figure? • How can my understanding of finding areas of rectangles and triangles help find the area of another shape? • How can the coordinate plane be used as a strategy to find the length of a side of a figure and the area of a figure? **Topic A Objectives:** **Lesson 1 (6.G.A.1)** • Students show the area formula for the region bounded by a parallelogram by composing it into rectangles. They understand that the area of a parallelogram is the area of the region bounded by the parallelogram.	**Topic A: Area of Triangles, Quadrilaterals and Polygons** **Topic A Teacher Toolbox Alignment:** ***Lesson 22: Area of Polygons*** Integrating Teacher Toolbox Lessons **Lesson 1** **Continued below**	**Vocabulary for Module 5** Altitude and Base of a Triangle **Familiar Terms and Symbols for Module 5**: Angle, Area, Length of a Segment, Parallel, Parallelogram, Perimeter, Perpendicular, Quadrilateral, Rectangle, Segment, Square, Trapezoid, Triangle, Volume

■ Major Work ➢ Supporting Work

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Geometry **Cluster:** Solve real-world and mathematical problems involving area, surface area and volume. ➢ **6.G.A.1**: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; know and apply these techniques in the context of solving real-world and mathematical problems.	**Lesson 2 (6.G.A.1)** • Students justify the area formula for a right triangle by viewing the right triangle as part of a rectangle composed of two right triangles. **Lesson 3 (6.G.A.1)** • Students show the area formula for a triangular region by decomposing a triangle into right triangles. For a given triangle, the height of the triangle is the length of the altitude. The length of the base is called either the length base or, more commonly, the base. • Students understand that the height of the triangle is the perpendicular segment from a vertex of a triangle to the line containing the opposite side. The opposite side is called the base. • Students understand that any side of a triangle can be considered a base and that the choice of base determines the height.	**Topic A, cont'd** **Lesson 2** **Lesson 3-4, Combine** Suggestions for combining • Teacher walk through Lesson 3 modeling exercise, have students complete part of the chart for Exercise 1 in Lesson 3 • Students work through the challenge in Lesson 4 with teacher guidance. Lesson 3 Exit Ticket #2, Lesson 4 Exit Ticket #1-3 **Continued below**	**Vocabulary for Module 5** Altitude and Base of a Triangle **Familiar Terms and Symbols for Module 5**: Angle, Area, Length of a Segment, Parallel, Parallelogram, Perimeter, Perpendicular, Quadrilateral, Rectangle, Segment, Square, Trapezoid, Triangle, Volume

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Geometry **Cluster:** Solve real-world and mathematical problems involving area, surface area and volume. ➢ **6.G.A.1**: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; know and apply these techniques in the context of solving real-world and mathematical problems.	**Lesson 4 (6.G.A.1)** • **Students construct the altitude for three different cases: an altitude that is a side of a right angle, an altitude that lies over the base, and an altitude that is outside the triangle.** • **Students deconstruct triangles to justify that the area of a triangle is exactly one half the area of a parallelogram.** **Lesson 5 (6.G.A.1)** • Students show the area formula for the region bounded by a polygon by decomposing the region into triangles and other polygons. They understand that the area of a polygon is actually the area of the region bounded by the polygon. • Students find the area for the region bounded by a trapezoid by decomposing the region into two triangles. They understand that the area of a trapezoid is actually the area of the region bounded by the trapezoid. Students decompose rectangles to determine the area of other quadrilaterals. **Lesson 6 (6.G.A.1)** • Students determine the area of composite figures in real-life contextual situations using composition and decomposition of polygons. • Students determine the area of a missing region using composition and decomposition of polygons	**Topic A cont'd** **Lesson 5** **Lesson 6** **Optional Quiz for M5 Topic A** **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Finding Area of Polygons Task Illustrative Math: Polygons in the Coordinate Plane Task Illustrative Math: Same Base Height Variation 2 Task Illustrative Math: Same Base and Height Variation 1 Task	**Vocabulary for Module 5** Altitude and Base of a Triangle **Familiar Terms and Symbols for Module 5**: Angle, Area, Length of a Segment, Parallel, Parallelogram, Perimeter, Perpendicular, Quadrilateral, Rectangle, Segment, Square, Trapezoid, Triangle, Volume

■ Major Work ➢ Supporting Work

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Geometry **Cluster:** Solve real-world and mathematical problems involving area, surface area and volume. ➢ **6.G.A.3**: Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side that joins two vertices (vertical or horizontal segments only). Know and apply these techniques in the context of solving real-world and mathematical problems.	**Essential Question(s):** • How can you find the area of composite figure? • How can my understanding of finding areas of rectangles and triangles help find the area of another shape? • How can the coordinate plane be used as a strategy to find the length of a side of a figure and the area of a figure? **Topic B Objectives:** **Lesson 8: (6.G.A.1, 6.G.A.3)** • Given coordinates for the vertices, students draw polygons in the coordinate plane. Students find the area enclosed by a polygon by composing or decomposing using polygons with known area formulas. • Students name coordinates that define a polygon with specific properties. **Lesson 9: (6.G.A.1, 6.G.A.3)** • Students find the perimeter of irregular figures using coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. • Students find the area enclosed by a polygon on the coordinate plane by composing or decomposing using polygons with known area formulas. **Lesson 10: (6.G.A.3)** • Students determine distance, perimeter, and area in real-world contexts.	**Topic B: Polygons on the Coordinate Plane** **Topic B Teacher Toolbox Alignment:** ***Lesson 23: Polygons in the Coordinate Plane*** Integrating Teacher Toolbox Lessons **Lesson 7 Omit** **Lesson 8** **Lesson 9** **Lesson 10** Optional Quiz for M5 Topic B **Mid-Module 5 Assessment & Review of Assessment** ***(Complete by 2/13/20)*** Optional M5 Mid-Module Assessment **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Polygons in the Coordinate Plane Task Illustrative Math: Walking the Block 6.G.A.3	**Vocabulary for Module 5 Topic B** Triangular Region, Hexagon, Pentagon

■ Major Work ➢ Supporting Work

Curriculum and Instruction – Mathematics

Quarter 3 Grade 6

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Geometry **Cluster:** Solve real-world and mathematical problems involving area, surface area and volume. ➢ **6.G.A.2**: Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Know and apply the formulas V = lwh and V = Bh where B is the area of the base to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	**Essential Question(s):** • How is the formula for the area of rectangles used in finding the volume of rectangular prisms? • What are two ways to find the volume of a rectangular prism? **Topic C Objectives:** **Lesson 11 (6.G.A.2)** • Students extend their understanding of the volume of a right rectangular prism with integer side lengths to right rectangular prisms with fractional side lengths. They apply the formula $V = l \cdot w \cdot h$ to find the volume of a right rectangular prism and use the correct volume units when writing the answer. **Lesson 12 (6.G.A.2)** • Students extend the volume formula for a right rectangular prism to the formula V = Area of base · height. They understand that any face can be the base. **Lesson 13 (6.G.A.2)** • Students develop, understand, and apply formulas for finding the volume of right rectangular prisms and cubes. **Lesson 14 (6.G.A.2)** • Students understand that volume is additive, and they apply volume formulas to determine the volume of composite solid figures in real-world contexts. • Students apply volume formulas to find missing volumes and missing dimensions.	**Topic C: Volume of Right Rectangular Prisms** **Topic C Teacher Toolbox Alignment:** ***Lesson 25: Volume*** Integrating Teacher Toolbox Lessons **Lessons 11-12, Combine** Suggestions for combining • Lesson 11 - Examples 1&2, • Students then complete the station exercises from Lesson 12, and when finished, complete the Lesson 11 exercises. • Lesson 12 Exit Ticket **Lesson 13** **Lesson 14** Optional Quiz for M5 Topic C **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Illustrative Math: Computing Volume Progression 1 Illustrative Math: Computing Volume Progression 2 Illustrative Math: Computing Volume Progression 3 Illustrative Math: Computing Volume Progression 4	**Vocabulary for Module 5** Cube, Hexagon, Pentagon, Right Rectangular Prism

■ Major Work ➢ Supporting Work

TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
Domain: Geometry **Cluster:** Solve real-world and mathematical problems involving area, surface area and volume. ➢ **6.G.A.2**: Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Know and apply the formulas V = lwh and V = Bh where B is the area of the base to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. ➢ **6.G.A.4:** Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	**Essential Question(s):** • How does the change in height affect the volume or surface area of a prism? • How can a net be used to find the surface area of a pyramid, rectangular or triangular prism? • Why are nets used to find the surface area of a pyramid, rectangular or triangular prism? **Topic D Objectives:** **Lesson 15: (6.G.A.4)** • Students use absolute value to determine Students construct three-dimensional figures through the use of nets. They determine which nets make specific solid figures and determine if nets can or cannot make a solid figure. **Lesson 16:(6.G.A.4)** • Students construct nets of three-dimensional objects using the measurements of a solid's edges. **Lesson17: (6.G.A.4)** • Students use nets to determine the surface area of three-dimensional figures. **Lesson 18: (6.G.A.4)** • Students determine that a right rectangular prism has six faces: top and bottom, front and back, and two sides. They determine that surface area is obtained by adding the areas of all the faces and develop the formula $SA = 2lw + 2lh + 2wh$. • Students develop and apply the formula for the surface area of a cube as $SA = 6s^2$.	**Topic D: Nets and Surface Area** **Topic D Teacher Toolbox Alignment:** ***Lesson 24: Nets and Surface Area*** Integrating Teacher Toolbox Lessons **Lesson 15** **Lesson 16** **Lesson 17** **Lesson 18** (Make connections to using nets to calculate SA for some of the examples and exercises.) **Lesson 19** Optional Quiz for M5 Topic D **End of Module 5 Assessment & Review of Assessment** ***(Complete by 3/4/20)*** Optional M5 End of Module Assessment **Reminder:** *It is recommended that teachers begin preparing for Module 6 by 2/10/20.* **Additional Resources:** Illustrative Math: Volumes with Fractional Edge Lengths Illustrative Math: Banana Bread Illustrative Math: Nets for Pyramids and Prisms 6.G.A.4 Nets Lesson **Continued below**	**Vocabulary for Module 5 Topic D** Surface of a Prism, Nets, Parallel Planes, Line Perpendicular to a Plane

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	Lesson 19: (6.G.A.2, 6.G.A.4) • Students determine the surface area of three-dimensional figures in real-world contexts. • Students choose appropriate formulas to solve real-life volume and surface area problems.		

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY

Module 6 Statistics

Grade 6 Pacing and Preparation Guide

(Allow approximately 1 week for instruction, review and assessment)

Domain: Statistics and Probability
Cluster: Develop understanding of statistical variability.

- **6.SP.A.1:** Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.

- **6.SP.A.2:** Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center (mean, median, mode), spread (range), and overall shape.

Cluster: Summarize and describe distributions.

- **6.SP.B.4:** Display a single set of numerical data using dot plots (line plots), box plots, pie charts and stem plots.

- **6. SP.B.5b:** Describe the nature of the attribute under investigation, including how it was measured and its units of measurement.

Essential Question(s):

- What types of questions will result in statistical variability?
- How can relevant data be collected, organized, and displayed to address statistical questions?
- What are appropriate displays for categorical data? What are appropriate displays for quantitative data?
- What can the shape of a statistical graph (dot plot or box plot) reveal about the data?

Topic A Objectives:

Lesson 1: (6.SP.A.1)

- Students distinguish between statistical questions and those that are not statistical.
- Students formulate a statistical question and explain what data could be collected to answer the question.
- Students distinguish between categorical data and numerical data.

Lesson 2: (6.SP.A.2, 6,SP.B.4)

- Given a dot plot, students begin describing the distribution of the points on the dot plot in terms of center and variability.

Lesson 3: (6.SP.A.2, 6,SP.B.4)

- Students create a dot plot of a given data set.

Topic A: Understanding Distributions

Topic A Teacher Toolbox Alignment:
Lessons 26*: Understand Statistical Questions*
Lesson 28*: Display Data on Dot Plots, Histograms, and Box Plots*
Integrating Teacher Toolbox Lessons

Lesson 1

Lesson 2 **Lesson 3**	You may want to introduce the vocabulary of center (mean, median and mode) in lessons 2 and 3. The term *mode* is not discussed much at all in the Common Core but it is included in the **TN 6th Grade Math Standards**, and *median* is covered in lesson 12.

Continued below

Vocabulary for Module 6 Topic A
Box Plot, Dot Plot Frequency, Median, Relative Frequency, Relative Frequency Table Statistical Question, Variability, Stem and Leaf Plot, Range, Mode

Familiar Terms and Symbols for Module 6
Line plot, Dot plot

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TN STATE STANDARDS	CONTENT	INSTRUCTIONAL SUPPORT	VOCABULARY
	• Students summarize a given data set using equal length intervals and construct a frequency table. • Based on a frequency table, students describe the distribution.		
Domain: Statistics and Probability **Cluster**: Develop understanding of statistical variability. ➢ **6.SP.A.2:** Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center (mean, median, mode), spread (range), and overall shape. **Cluster**: Summarize and describe distributions. ➢ **6.SP.B.4:** Display a single set of numerical data using dot plots (line plots), box plots, pie charts and stem plots. ➢ **6. SP.B.5b:** Describe the nature of the attribute under investigation, including how it was measured and its units of measurement.	**Lesson 4: (6.SP.A.2, 6,SP.B.4, 6.SP.B.5)** • Students construct a frequency ~~histogram~~ **stem and leaf plot.** • Students recognize that the number of intervals used may affect the shape of a ~~histogram~~ stem plot. **Lesson 5: (6.SP.A.2, 6,SP.B.4, 6.SP.B.5)** • Students construct a relative frequency ~~histogram~~ stem and leaf plot. • Students recognize that the shape of a ~~histogram~~ **stem and leaf plot** constructed using relative frequencies is the same as the shape of the ~~histogram~~ **stem and leaf plot** constructed using frequencies (provided that the same intervals are used).	**Topic A, cont'd** **Along with lessons 4 & 5 use Khan Academy Stem and Leaf Plot lesson. You may also use this Purple Math lesson to review stem and leaf plots.** **Lesson 4** **Lesson 5**: The TN 6th Grade Math Standard 6.SP.B.4 no longer addresses histograms. In lessons 4 & 5 replace the use of histograms to pie charts or stem plots. **Additional Resources:** *These optional resources may be used for extension, enrichment and/or additional practice, as needed.* Math is Fun: Pie Charts Khan Academy: Dot Plots Shape of Distributions Illustrative Math: Buttons - A Statistical Question 6.SP.A.1 Illustrative Math: Describing Distributions 6.SP.2, 6.SP.4	**Vocabulary for Module 6 Topic A** Box Plot, Dot Plot Frequency, Median, Relative Frequency, Relative Frequency Table Statistical Question, Variability, Stem and Leaf Plot, Range, Mode **Familiar Terms and Symbols for Module 6** Line plot, Dot plot

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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
Calculator Activities TI-83 & TI-84 Activities for Middle Grades TI-Inspire 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** Embarc Online PBS: Grades 6-8 Lesson Plans 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 3 **Grade 6**

January 2020

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
			1	**2**	**3**	**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.
			Winter Break			
Module 4 Topic F	**6** *Quarter 3 Begins* Module 4 Lesson 18	**7** Module 4 Lesson 19	**8** Module 4 Lesson 20	**9** Module 4 Lesson 22	**10** Flex Day Options **6.EE.A.2** **6.EE.B.6** **Pacing** **Other**	
Module 4 Topic G	**13** Module 4 Lessons 23-24, combined	**14** Module 4 Lesson 25	**15** Module 4 Lesson 26	**16** Module 4 Lesson 27	**17** *½ day students* Flex Day Options **6.EE.B.5*** **6.EE.B.6** **6.EE.B.7** **Pacing** **Other**	
Module 4 Topic H	**20** ***Martin Luther King Jr. Day***	**21** Teacher Toolbox Lesson 21	**22** Module 4 Lesson 31	**23** Module 4 Lesson 31	**24** Teacher Toolbox Lesson 20	
Module 4 Topic H	**27** Module 4 Lessons 33-34, combined	**28** Module 4 Lessons 33-34, combined	**29** End of Module 4 Assessment & Review of Assessment	**30** End of Module 4 Assessment & Review of Assessment	**31** Flex Day Options **6.EE.B.5***, **6.EE.B.7** **6.EE.C.9*** **Pacing** **Other**	

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 3 **Grade 6**

February 2020

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
Module 5 Topic A	**3** Module 5 Lesson 1	**4** Module 5 Lesson 2	**5** Module 5 Lessons 3-4, combined	**6** Module 5 Lesson 5	**7** Flex Day Options 6.G.A.1 6.EE.B.8 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 5 Topics A & B	**10** Module 5 Lesson 6	**11** Module 5 Lesson 8	**12** Module 5 Lesson 9	**13** *Parent Teacher Conferences* **Mid-Module 5 Assessment & Review of Assessment**	**14** *1/2 day students* Flex Day Options 6.G.A.1 6.G.A.3 Pacing Other	
Module 5 Topics C & D	**17** **PD FLEX DAY** ***President's Day***	**18** Module 5 Lessons 11-12, combined	**19** Module 5 Lesson 13	**20** Module 5 Lesson 14	**21** Module 5 Lesson 15	
Module 5 Topic D	**24** Module 5 Lesson 16	**25** Module 5 Lesson 17	**26** Module 5 Lesson 18	**27** Module 5 Lesson 19	**28** Flex Day Options 6.G.A.4 Pacing Other	

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 3 **Grade 6**

March 2020

Module/Topic	Monday	Tuesday	Wednesday	Thursday	Friday	Notes:
Module 5 Module 6 Topic A	**2** **End of Module 5 Assessment & Review of Assessment**	**3** **End of Module 5 Assessment & Review of Assessment**	**4** Module 6 Lesson 1	**5** Module 6 Lesson 2	6 Flex Day Options 6.G.A.4 6.SP.A.1 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 6 Topic A	**9** Module 6 Lesson 3	**10** Module 6 Lesson 4 **Along with lessons 4 & 5 use Khan Academy Stem and Leaf Plot lesson. You may also use this Purple Math lesson to review stem and leaf plots.**	**11** Module 6 Lesson 5	**12** **Module 6 Topic A Assessment**	13 *Quarter 3 Ends* Flex Day Options 6.SP.A.2 6.SP.B.4 6.SP.B.5 Pacing Other	
	16	**17**	**18**	**19**	**20**	
	Spring Break					
	23 *Quarter 4 begins*	**24**	**25**	**26**	**27**	
	30	**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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