Sixth Grade
Sevier County School System
Math Correlations/Pacing Guide 2018-2019

This pacing guide was designed to correlate w/TNReady Blueprint Assessment.

The following pages are a recommended pacing guide for mathematics. This pacing guide is designed to assist the teacher in planning for the entire school year & to complete the necessary Tennessee State Standards required for sixth grade. All topics/lessons are listed in an order that is conducive to completing necessary skills prior to testing for sixth grade.

- The adopted text for grades 6-8 is Houghton Mifflin Harcourt (HMH). It is important to keep in mind that curriculum standards drive the instruction. This guide will ensure the standards are taught prior to the TNReady assessment. https://my.hrw.com/
- The yellow highlighted TN State Standard is the fluency standard. It is important to ensure that sufficient practice and extra support are provided at each grade to allow all students to meet the standards that call explicitly for fluency. It is important to provide the conceptual building blocks that develop understanding in tandem with skill along the way to fluency. Sixth grade fluency expectations are multi-digit division & multi-digit decimal operations.
- **Math practices and the content standards need to be taught simultaneously.** Please go to www.sevier.org for math practice posters.
- Each lesson has one focus math practice. Please note that other practices should be used in each lesson depending on style of the lesson.
- For more information on Number Talks, please research Number Talks by Marilyn Burns via website access to downloadable content at : http://www.ursdoc.com/number-talks-marilyn-burns.html. In order to extend number talks practice, refer to Extending Number Talks.
- Literacy Skills for Math Proficiency were added with the new revised standards. Communication in mathematics requires literacy skills in reading, vocabulary, speaking and listening, and writing. Literacy Skills are outlined on page 3.

Must-See Resources

IXL
Standards-based online independent practice

Grade 6 Assessment Resources
Assessment resources available on the sevier.org Teacher Access Page

Khan Academy
Graphite
Prodigy Math
6th Grade Common Core Tasks
Math Journal Tasks
Illustrative Mathematics Tasks
Number Talks - Marilyn Burns
LearnZillion
EngageNY
CPALMS
Utah Education Network
Eureka Math

Textbook Math Resources

Grade Roadmaps   Why learn conceptual math?

GO Math

Title	Teacher's Edition ISBN	Secure Words	Access Expiration Date
Math OnCore Interactive Whiteboards Grade 6	054790620X	Page 1,Word 1:**Explore**	06-29-2024
Go Math, TN Middle School, Grade 6 2014	0544816390	Page CC1,Word 3:**Standards** Page iv,Word 2:**Reviewers** Page xv,Word 6:**Community**	06-29-2021

Standards for Mathematical Practice

Math Practices	Explanations & Examples
1. Make sense of problems & persevere in solving them.	In grade 6, students solve real world problems through the application of algebraic & geometric concepts. These problems involve ratio, rate, area & statistics. Students seek the meaning of a problem & look for efficient ways to represent & solve it. They may check their thinking by asking themselves, "What is the most efficient way to solve the problem?", "Does this make sense?", & "Can I solve the problem in a different way?". Students can explain the relationships between equations, verbal descriptions, tables & graphs. Mathematically proficient students check answers to problems using a different method.
2. Reason abstractly & quantitatively.	In grade 6, students represent a wide variety of real world contexts through the use of real numbers & variables in mathematical expressions, equations, & inequalities. Students contextualize to understand the meaning of the number or variable as related to the problem & decontextualize to manipulate symbolic representations by applying properties of operations.
3. Construct viable arguments & critique the reasoning of others.	In grade 6, students construct arguments using verbal or written explanations accompanied by expressions, equations, inequalities, models, & graphs, tables, & other data displays (i.e. box plots, dot plots, histograms, etc.). They further refine their mathematical communication skills through mathematical discussions in which they critically evaluate their own thinking & the thinking of other students. They pose questions like "How did you get that?", "Why is that true?" "Does that always work?" They explain their thinking to others & respond to others' thinking.
4. Model w/ mathematics.	In grade 6, students model problem situations symbolically, graphically, tabularly, & contextually. Students form expressions, equations, or inequalities from real world contexts & connect symbolic & graphical representations. Students begin to explore covariance & represent two quantities simultaneously. Students use number lines to compare numbers & represent inequalities. They use measures of center & variability & data displays (i.e. box plots & histograms) to draw inferences about & make comparisons between data sets. Students need many opportunities to connect & explain the connections between the different representations. They should be able to use all of these representations as appropriate to a problem context.
5. Use appropriate tools strategically.	Students consider available tools (including estimation & technology) when solving a mathematical problem & decide when certain tools might be helpful. For instance, students in grade 6 may decide to represent figures on the coordinate plane to calculate area. Number lines are used to understand division & to create dot plots, histograms & box plots to visually compare the center & variability of the data. Students might use physical objects or applets to construct nets & calculate the surface area of three-dimensional figures.
6. Attend to precision.	In grade 6, students continue to refine their mathematical communication skills by using clear & precise language in their discussions w/ others & in their own reasoning. Students use appropriate terminology when referring to rates, ratios, geometric figures, data displays, & components of expressions, equations or inequalities.
7. Look for and make use of structure.	Students routinely seek patterns or structures to model & solve problems. For instance, students recognize patterns that exist in ratio tables recognizing both the additive & multiplicative properties. Students apply properties to generate equivalent expressions (i.e. $6 + 2x = 3 (2 + x)$ by distributive property) & solve equations (i.e. $2c + 3 = 15$, $2c = 12$ by subtraction property of equality, $c=6$ by division property of equality). Students compose & decompose two- & three-dimensional figures to solve real world problems involving area & volume.
8. Look for and express regularity in repeated reasoning.	In grade 6, students use repeated reasoning to understand algorithms & make generalizations about patterns. During multiple opportunities to solve & model problems, they may notice that $a/b \div c/d = ad/bc$ & construct other examples & models that confirm their generalization. Students connect place value & their prior work w/ operations to understand algorithms to fluently divide multi-digit numbers & perform all operations w/ multi-digit decimals. Students informally begin to make connections between covariance, rates, & representations showing the relationships between quantities.

Literacy Skills for Mathematical Proficiency

Literacy Skills	Explanation
1. Use multiple reading strategies.	Reading in mathematics is different from reading literature. Mathematics contains expository text along with precise definitions, theorems, examples, graphs, tables, charts, diagrams, and exercises. Students are expected to recognize multiple representations of information, use mathematics in context, and draw conclusions from the information presented. In the early grades, non-readers and struggling readers benefit from the use of multiple representations and contexts to develop mathematical connections, processes, and procedures. As students' literacy skills progress, their skills in mathematics develop so that by high school, students are using multiple reading strategies, analyzing context-based problems to develop understanding and comprehension, interpreting and using multiple representations, and fully engaging with mathematics textbooks and other mathematics-based materials. These skills support Mathematical Practices 1 and 2.
2. Understand and use correct mathematical vocabulary.	Understanding and using mathematical vocabulary correctly is essential to mathematical proficiency. Mathematically proficient students use precise mathematical vocabulary to express ideas. In all grades, separating mathematical vocabulary from everyday use of words is important for developing an understanding of mathematical concepts. For example, a "table" in everyday use means a piece of furniture, while in mathematics, a "table" is a way of organizing and presenting information. Mathematically proficient students are able to parse a mathematical term, definition, or theorem, provide examples and counterexamples, and use precise mathematical vocabulary in reading, speaking, and writing arguments and explanations. These skills support Mathematical Practice 6.
3. Discuss and articulate mathematical ideas	Mathematically proficient students can listen critically, discuss, and articulate their mathematical ideas clearly to others. As students' mathematical abilities mature, they move from communicating through reiterating others' ideas to paraphrasing, summarizing, and drawing their own conclusions. A Literacy Skills for Mathematical Proficiency 1. Use multiple reading strategies. 2. Understand and use correct mathematical vocabulary. 3. Discuss and articulate mathematical ideas. 4. Write mathematical arguments. 14 mathematically proficient student uses appropriate mathematics vocabulary in verbal discussions, listens to mathematical arguments, and dissects an argument to recognize flaws or determine validity. These skills support Mathematical Practice 3.
4. Write mathematical arguments.	Mathematically proficient students write mathematical arguments to support and refute conclusions and cite evidence for these conclusions. Throughout all grades, students write reflectively to compare and contrast problem-solving approaches, evaluate mathematical processes, and analyze their thinking and decision-making processes to improve their mathematical strategies. These skills support Mathematical Practices 2, 3, and 4.

Standards Key: <mark>Major Content</mark> <mark>Supporting Content</mark> <mark>Fluency Content</mark>
TNReady Blueprint for 6th Grade Mathematics - 1st Six Weeks
August 14 - September 26

Text	Tennessee Standards	Math Practices	Tasks	Resources
Unit 1 Numbers (17 days)			

Module 1: Integers
 	
Lesson 1.1
pg 7
Integers & their opposites
 	
Lesson 1.2
pg 13
Comparing & Ordering Integers
 	
Lesson 1.3
pg 19
Absolute Value
	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 itself, e.g., -(-3) = 3, and that 0 is its own opposite.
	
	6.NS.C.7 Understand ordering and absolute value of rational numbers.
	    b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write –3
		2
		
		5
		
		4
			Unit 1
			  * *Performance task p. 70*
			
			Silicon Valley's Freezing in Fargo task *Word Document 6.NS.5
			
			6.NS.5-8 about 18 tasks to choose from under number system
			
			MAFS.6.NS.3.6
			
			NS Tasks LIst of tasks to choose from under number system.
				https://learnzillion.com/search?m=LessonPlan&q=understand%20rational%20numbers
				
				Measuring Up
				Chapter 2 Lessons 12 & 15
				
				Understand rational numbers & ordered pairs; place pairs …
				
				CCSS 6.NS.C.6c Placing Integers on a Number Line: Aligns …
				
				Learn Zillion - Opposite of the Opposite
				
				6.NS.C.6
					Common Core list of numerous resources
					
					IXL Skill Lesson 1.1 - 1.3
					M.4 Graph Integers
					M.5 Compare Integers
					M.3 Absolute Value
					
					GAME - Spider Match Integers

	oC > –7 oC to express the fact that –3 oC is warmer than –7 oC. c. Understand the absolute value of a rational number as its distance from 0 on the number line and distinguish comparisons of absolute value from statements about order in a real-world context. For example, an account balance of -24 dollars represents a greater debt than an account balance - 14 dollars because -24 is located to the left of -14 on the number line			*Measuring Up* Chapter 2 Lesson 14
Module 2: Factors & Multiples Lesson 2.1 pg 31 Greatest Common Factor Lesson 2.2 pg 37 Least Common Multiple	6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36 + 8 as 4 (9 + 2).	2 8		*Measuring Up* Chapter 2 Lesson 11 GCF Powerpoint IXL Skill Lessons 2.1 & 2.2 E.4 Identify Factors E.7 GCF E.8 LCM E.9 GCF/LCM word problems
Module 3: Rational Numbers Lesson 3.1 pg 47 Classifying Rational Numbers	6.NS.C.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. c. Find and position integers and other rational numbers on a	3		*Measuring Up* Chapter 2 Lesson 13 & 16 IXL Skill Lessons 3.1 *Note: NO Grade 6 IXL Skill identified for Lesson 3.1*

Lesson 3.2 pg 53 Identifying Opposites & Absolute Value of Rational Numbers	horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	4		IXL Skill Lesson 3.2 P.3 Absolute Value
Lesson 3.3 pg 59 Comparing & Ordering Rational Numbers	6.NS.C.7 Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.	4		IXL Skill Lesson 3.3 I.9 Convert between improper fractions/mixed numbers I.10 Convert between decimals/fraction/mixed numbers P.1 Compare rational numbers P.2 Put rational numbers in order I.11 Put a mix of decimals/ fractions/mixed numbers in order Locate Rational Numbers on a Number Line Video Order Rational Numbers Video Math Nook - Math Game Ordering Rational Numbers

Unit 2 Number Operations
(12 days)

Module 4: Operations w/ Fractions Lesson 4.1 Applying LCM & GCF to Fraction Operations	6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36 + 8 as 4 (9 + 2).	5	*Unit 2 Performance tasks p. 140* Task Unit: NYCDOE_G6_Math_SharemyCandy_FINAL.pdf	*Measuring Up* Chapter 2 Lesson 7 Engage NY Module 2 Dividing Fractions Neat Subtracting Fractions Trick IXL Skill Lesson 4.1 J.3 Add/subtract fractions w/ unlike denominators J.4 Add/subtract fractions w/ unlike denominators: word problems J.6 Add/subtract mixed numbers J.7 Add/subtract mixed numbers: word problems

Lesson 4.2 Dividing Fractions	6.NS.A.1 Interpret and compute quotients of fractions, and solve contextual problems involving division of fractions by fractions (e.g., using visual fraction models and equations to represent the problem is suggested).
	    For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because 3/4 times 8/9 is 2/3 $((a/b) \div (c/d) = ad/bc.)$
	    Further example: How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?
		4		K.1 Fractions of whole numbers
				K.2 Fractions of whole numbers
				K.6 Multiply two fractions
				K.7 Multiply fractions: word problems
				K.10 Multiply mixed numbers/whole numbers
				
				See also: E.7 Greatest common factor
				        E.8 Least common multiple
				        I.4 Write fractions in lowest terms

Lesson 4.3 Dividing Mixed Numbers		4		IXL Skill Lesson 4.2 L.1 Divide whole numbers by unit fractions using models L.2 Reciprocals L.5 Divide fractions IXL Skill Lesson 4.3 L.7 Divide fractions/mixed numbers L.8 Divide fractions/mixed numbers: word problems
Lesson 4.4 Solving Multi-step Problems w/ Fractions & Mixed Numbers		1		IXL Skill Lesson 4.4 O.7 Add, subtract, multiply, or divide two fractions O.8 Add, subtract, multiply, or divide two fractions: word problems O.9 Evaluate numerical expressions involving fractions

Standards Key: <mark style="background-color: #00ff00">Major Content</mark> <mark style="background-color: #6699ff">Supporting Content</mark> <mark style="background-color: #ffff00">Fluency Content</mark>

TNReady Blueprint for 6th Grade Mathematics - 2nd Six Weeks
September 27 - November 13

Text	Tennessee Standards	Math Practices	Tasks	Resources
Unit 2 Number Operations (CONTINUED) (9 days)				
Module 5 Operations with Decimals Lesson 5.1 pg 107 Dividing Whole Numbers Lesson 5.2 pg 113 Adding & Subtracting Decimals Lesson 5.3 pg 119 Multiplying Decimals Lesson 5.4 pg 125 Dividing Decimals Lesson 5.5 pg 131	<mark style="background-color: #ffff00">6.NS.B.2 Fluently divide multi-digit numbers using a standard algorithm.</mark> <mark style="background-color: #ffff00">6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.</mark>	6 2 5 2 1		Decimal Numbers Review Song *Measure Up* Chapter 2 Lesson 8-10 +/- Decimal Line up the Dot Song Operation Decimal Rap Video Grade 6: The Number System Khan Academy IXL Skill Lesson 5.1 C.5 Divide whole numbers - 2-digit divisors C.6 Divide whole numbers - 3-digit divisors See also: C.3 Divide numbers ending in zeroes: word problems C.4 Estimate quotients IXL Skill Lesson 5.2 G.1 Add/subtract decimal numbers G.2 Add/subtract decimals: word problems U.2 Add/subtract money amounts U.3 Add/subtract money amounts: word problems See also: G.3 Estimate sums/differences of decimals IXL Skill Lesson 5.3 H.2 Multiply decimals See also: H.1 Estimate products of decimal numbers U.4 Multiply money by whole numbers/decimals

Applying Operations w/ Rational Numbers				U.5 Multiply money: word problems IXL Skill Lesson 5.4 H.4 Divide decimals by whole numbers H.5 Divide decimals by whole numbers: word problems H.7 Division w/ decimal quotients U.6 Divide money amounts U.7 Divide money amounts: word problems IXL Skill Lesson 5.5 I.10 Convert between decimals & fractions or mixed numbers O.6 Evaluate numerical expressions involving decimals O.9 Evaluate numerical expressions involving fractions
Unit 3 Proportionality: Ratios & Rates (19 days)				
Module 6: Representing Ratios Lesson 6.1 pg 149 Ratios Lesson 6.2 pg 155 Rates/Unit Rates Lesson 6.3 pg 161 Using Ratios & Rates to Solve Problems	6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, the ratio of wings to beaks in a bird house at the zoo was 2:1, because for every 2 wings there was 1 beak OR For every vote candidate A received, candidate C received nearly three votes 6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? 6.RP.A.2 Understand the	4 3 6	*Unit 3* *Performance tasks p. 228* MAFS.6.RP.1.2	*Measure Up* Chapter 1 Lesson 1 & 2 Eureka Math Module 1: Ratios & Unit Rates Engage NY: Module 1 Rates a Ratios CCSS.Math.Content.6.RP.A.3 Use Ratio & Rate… Solve ratio problems using tables & the coordinate plane (1) 6.RP.A.3	Common Core Ratio Activities 6.RP.2 -- 6th grade unit rate & ratios Convert between centimeters & inches Unit 1: Ratios & Proportional Relationships (6.RP) IXL Skill Lesson 6.1 R.1 Write a ratio to describe objects in a picture R.2 Write a ratio: word problems R.3 Identify equivalent ratios R.6 Equivalent ratios: word problems

	concept of a unit rate a/b associated with a ratio a:b with b ≠ 0. Use rate language in the context of a ratio relationship. For example, this recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar OR We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger. **(Expectations for unit rates in 6th grade are limited to non-complex fractions).**			Ratio Stadium Game - Equivalent Ratio IXL Skill Lesson 6.2 R.5 Ratio tables R.7 Unit rates and equivalent rates R.9 Unit rates: word problems V.2 Unit prices Mashup Math - Unit Rate Video INTRODUCTION IXL Skill Lesson 6.3 R.2 Write a ratio: word problems R.5 Ratio tables R.6 Equivalent ratios: word problems R.8 Compare ratios: word problems R.9 Unit rates: word problems Mashup - How can I find and simplify ratios
Module 7: Applying Ratios & Rates Lesson 7.1 pg 173 Ratios, Rates, Tables, & Graphs Lesson 7.2 pg 179 Solving Problems w/ Proportions	6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems (e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). a. Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. . 6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4	4 7 4		*Measure Up* Chapter 1 Lesson 3 thru 6 Consumer Reports Unit Pricing Real World Connection IXL Skill Lesson 7.1 R.3 Identify equivalent ratios R.5 Ratio tables R.6 Equivalent ratios: word problems R.7 Unit rates and equivalent rates R.9 Unit rates: word problems IXL Skill Lesson 7.2 R.10 Do the ratios form a proportion? R.12 Scale drawings: word problems

Lesson 7.3 pg 185 Converting w/in Measurement Systems	lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? 6.RP.A.3.d. Use ratio reasoning to convert customary and metric measurement units (within the same system); manipulate and transform units appropriately when multiplying or dividing quantities.	4		IXL Skill Lesson 7.3 T.3 Convert and compare customary units T.6 Customary unit conversions involving fractions and mixed numbers T.7 Convert and compare metric units Measurement Real World Metrics Conversions Video Converting Centimeter to Meter Khan Academy Bill Nye's Clip - Introduction to the Metric System Brain Pop Metric Video's and Games

Standards Key: Major Content Supporting Content Fluency Content

TNReady Blueprint for 6th Grade Mathematics - 3rd Six Weeks
November 13 - December 21

Text	Tennessee Standards	Math Practices	Tasks	Resources
	Unit 3 Proportionality: Ratios & Rates (CONTINUED) (12 days)			
Module 8: Percents Lesson 8.1 pg 203 Understanding Percent Lesson 8.2 pg 209 Percents, Fractions, & Decimals Lesson 8.3 Solving Percent Problems	6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems (e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	2 4 4		Learn Zillion Percent Video Lesson Series Engage NY Module 3 Rational Numbers IXL Skill Lesson 8.1 S.2 Compare percents to each other and to fractions S.3 Compare percents and fractions: word problems IXL Skill Lesson 8.2 S.1 Convert between percents, fractions, and decimals IXL Skill Lesson 8.3 S.4 Percents of numbers and money amounts S.5 Percents of numbers: word problems S.7 Find what percent one number is of another S.8 Find what percent one number is of another: word problems

Unit 4 Equivalent Expressions (17 days)				
Module 9: **Generating** **Equivalent** **Numerical** **Expressions** Lesson 9.1 pg 237 Exponents Lesson 9.2 pg 243 Prime Factorization Lesson 9.3 pg 255 Order of Operations	6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.	 2 2 5	***Unit 4 performance tasks p. 288*** 6. EE.2 Task Reflect triangle 6.EE.2 Task 3 Mailing presents/volume/variables 6.EE.2 Task 4 Wrapping presents/surface/expressions NYC.gov Task Unit *PDF Format Grocery shopping task & making a quilt task	*Measure Up* Chapter 3 Lessons 17-20 Released EE Items from Iowa Core - Test practice questions Expressions & Equations Khan Academy Engage NY: Module 4 Equations & Expressions IXL Skill Lesson 9.1 D.1 Write multiplication expressions using exponents D.2 Evaluate exponents D.3 Find the missing exponent or base D.4 Exponents with decimal bases D.5 Exponents with fractional bases IXL Skill Lesson 9.2 E.4 Identify factors E.5 Prime factorization E.6 Prime factorization with exponents See also: E.3 Prime or composite IXL Skill Lesson 9.3 O.3 Evaluate numerical expressions involving whole numbers See also: O.9 Evaluate numerical expressions involving fractions O.11 Evaluate numerical expressions involving integers

Module 10: Generating Equivalent Algebraic Expressions
 	
Lesson 10.1 pg 261 Modeling & Writing Expressions
 	
Lesson 10.2 pg 269 Evaluating Expressions
 	
Lesson 10.3 pg 275 Generating Equivalent Expressions
	6.EE.A.2 Write, read, and evaluate expressions in which variables stand for numbers.
	   a. Write expressions that record operations with numbers and with variables. For example, express the calculation "Subtract y from 5" as 5 - y.
	   b. 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.
	    For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.
	   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).
	
	6.EE.A.3 Apply the properties of operations (including, but not limited to,
		2
		
		6
		
		2
				Mashup Math Video - How do I write an Algebraic Expression?
				
				Numerical Expressions:
				https://www.pdesas.org/ContentWeb/Content/Content/6136/Lesson%20Plan
				
				IXL Skill Lesson 10.1
				Y.1 Write variable expressions
				Y.2 Write variable expressions: word problems
				
				IXL Skill Lesson 10.2
				Y.3 Evaluate variable expressions with whole numbers
				Y.4 Evaluate multi-variable expressions
				Y.5 Evaluate variable expressions with decimals, fractions, and mixed numbers
				
				MathAntics Distributive Property Video
				
				IXL Skill Lesson 10.3
				Y.6 Identify terms and coefficients
				Y.8 Properties of addition
				Y.9 Properties of multiplication
				Y.10 Multiply using the distributive property
				Y.13 Write equivalent expressions using properties
				Y.14 Add and subtract like terms
				Y.15 Identify equivalent expressions

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	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 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. 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.			

Standards Key: <mark>Major Content</mark> <mark>Supporting Content</mark> <mark>Fluency Content</mark>

TNReady Blueprint for 6th Grade Mathematics - 4th Six Weeks
January 8 - February 20

Text	Tennessee Standards	Math Practices	Tasks	Resources
Unit 5 Equations & Inequalities (22 days)				
Module 11: Equations & Relationships Lesson 11.1 pg 297 Writing Equations to Represent Situations Lesson 11.2 pg 303 Addition & Subtraction Equations Lesson 11.3 pg 311 Multiplication & Division Equations Lesson 11.4 pg 319 Writing 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 to represent a constraint or condition in a	4 2 5 2	*Unit 5 performance tasks p. 262* Eureka Math: Module 4 Several math tasks & problems on one document 6.EE.B Illustrative Mathematics Tasks	Expressions & Equations Khan Academy *Measure Up* Chapter 3 Lessons 21 thru 23 Module 4 Teacher Materials Test practice questions IXL Skill Lesson 11.1 IXL Skill Lesson 11.2 IXL Skill Lesson 11.3 Z.4 Model and solve equations using algebra tiles Z.6 Solve one-step equations with whole numbers Z.7 Solve one-step equations with decimals, fractions, and mixed numbers Z.8 Solve one-step equations: word problems IXL Skill Lesson 11.4 AA.1 Solutions to inequalities AA.3 Write inequalities from number lines See also: AA.2 Graph inequalities on number lines

	real-world or mathematical problem. Recognize that inequalities of the form x>c or x<c have infinitely many solutions; represent solutions of such inequalities on number line diagrams. 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.			
Module 12: Relationships in Two Variables Lesson 12.1 pg 331 Graphing on the Coordinate Plane	6.NS.C.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	2		IXL Skill Lesson 12.1 X.1 Objects on a coordinate plane X.2 Graph points on a coordinate plane Mashup How do I plot a line? Video Game - Rescue Mission Coordinate Plane
Lesson 12.2 pg 337 Independent & Dependent Variables in Tables & Graphs	b. 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.	4		IXL Skill Lesson 12.2 BB.2 Identify independent and dependent variables
Lesson 12.3 pg 345 Writing Equations from Tables	6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another.	1		IXL Skill Lesson 12.3 BB.5 Complete a table for a two-variable relationship BB.6 Write a two-variable equation
Lesson 12.4	For example, Susan is putting money in her savings account by depositing a set	4		IXL Skill Lesson 12.4 BB.5 Complete a table for a two-variable relationship

pg 351 Representing Algebraic Relationships in Tables & Graphs	amount each week (50). Represent her savings account balance with respect to the number of weekly deposits (s = 50w, illustrating the relationship between balance amount s and number of weeks w).			BB.8 Graph a two-variable equation See also: BB.7 Identify the graph of an equation

Unit 6 Relationships in Geometry (10 days)				

| **Module 13: Area & Polygons** Lesson 13.1 pg 371 Area of Quadrilaterals Lesson 13.2 pg 377 Area of Triangles Lesson 13.3 pg 383 Solving Area Equations Lesson 13.4 pg 389 Area of Polygons | 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. 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. | 3 2 1 4 | *Unit 6 performance tasks p. 440* | *Measure Up* Chapter 4 Lesson 24 MAFS.6.G.1.1 Area http://illuminations.nctm.org/Activity.aspx?id=3567 Area tool Internet4classrooms area Trapezoids & Parallelograms Eureka Math: Module 5 IXL Skill Lesson 13.1 IXL Skill Lesson 13.2 FF.5 Area of quadrilaterals IXL Skill Lesson 13.3 IXL Skill Lesson 13.4 FF.6 Area of compound figures See also: FF.7 Area between two rectangles FF.8 Area between two triangles |

Standards Key: <mark>Major Content</mark> <mark style="background:blue">Supporting Content</mark> <mark style="background:yellow">Fluency Content</mark>

TNReady Blueprint for 6th Grade Mathematics - 5th Six Weeks
February 21 - April 11
Note: Spring Break April 1st thru 5th

Text	Tennessee Standards	Math Practices	Tasks	Resources
Unit 6 Relationships in Geometry (CONTINUED) (13 days)
Module 14: Distance & Area in the Coordinate Plane Lesson 14.1 pg 401 Distance on the Coordinate Plane Lesson 14.2 pg 407 Polygons in the Coordinate Plane	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. 6.NS.C.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.　　b. 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.	3 2	NAEP - Grade 6 Tasks - Geometry.pdf various geometry tasks/question types MAFS.6.G.1.4 3D figures using nets 6.G Computing Volume Progression 4 Illustrative Mathematics task	*Measure Up* Lesson 26 6.NS.C.8	Common Core Coordinate Plane Draw polygons using given coordinates as vertices MAFS.6.G.1.3 Polygons on the Coordinate Plane Polygons in the Coordinate Plane 6.G.3 EngageNY Lessons 6.G.4 Learnzillion Lessons Represent 3-D figures w/ nets Use nets to represent three-dimensional figures & find … IXL Skill Lesson 14.1 X.5 Distance between two points IXL Skill Lesson 14.2 No identified IXL lessons available Polygons on a coordinate plane task

	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			
Module 15: Surface Area & Volume of Solids Lesson 15.1 pg 419 Nets of Surface Area Lesson 15.2 pg 425 Volume of Rectangular Prisms Lesson 15.3 pg 431 Solving Volume Equations	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. 6.EE.B.7 Solve real-world and mathematical problems by	6 4 6		*Measure Up* Lessons 25, 27 & 28 Surface Area Videos Learnzillion XL Skill Lesson 15.1 FF.15 Surface area of cubes and rectangular prisms See also: EE.3 Nets of three-dimensional figures Find the volume of a fractional rectangular prism: using unit … Mashup Math Video - How Do I Find Volume of a Rectangular Prism with Fractional Edges? Math Antics Volume Video IXL Volume EE.13 in Grade 5 Lesson 15.2 IXL Skill Lesson 15.3 FF.14 Volume of cubes and rectangular prisms

	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.			

Unit 7 Measurement & Data **(12 Days)**				
Module 16: **Displaying,** **Analyzing, &** **Summarizing** **Data** Lesson 16.1 pg 449 Measures of Center	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. 6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	4 5 2 3 2	CCSS.Math.Content.6.SP.A.3 Recognize That A… 6.SP.B.4 | Common Core 6.SP.4 CCSS Math Standard 6.SP.4 SP.2 MAFS.6.SP.2.4 SP Tasks MAFS.6.SP.1.2	*Measure Up* Chapter 5 Lessons 29 & 30 6.SP.A.2 | Common Core Engage NY: Module 6 Eureka Math: Module 6 *Measure Up* Chapter 5 Lessons 31 thru 33
Lesson 16.3 pg 463				IXL Skill Lesson 16.3 GG.19 Interpret box-and-whisker plots

Box Plots
 	
Lesson 16.4
pg 469
Dot Plots & Data Distribution
 	
Lesson 16.5
pg 477
Histograms
	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.5 Summarize numerical data sets in relation to their context.
	    a. Report the number of observations.
	    b. Describe the nature of the attribute under investigation, including how it was measured and its units of measurement.
	    c. Give quantitative measures of center (median and/or mean) and variability (interquartile range/range) as well as describing any overall pattern with reference to the context in which the data were gathered.
	    d. Relate the choice of measures of center to the shape of the data distribution and the context in which the data were gathered.
				IXL Skill Lesson 16.4
				GG.3 Interpret line plots
				GG.4 Create line plots
				
				IXL Skill Lesson 16.5
				GG.12 Create histograms

TNReady Blueprint for 6th Grade Mathematics - 6th Six Weeks
April 12 - May 31

Text	Tennessee Standards	Math Practices	Tasks	Resources
	REVIEW and/or Begin skills for next year Resources online from GoMath: "Getting Ready for Grade 7"			https://my.hrw.com/content/hmof/math/gomath/tn/gr6/student_resources_9780544814844_/index.html
	Testing will tentatively take place on Day 5 & 6 of the Testing Window. This is scheduled for May 1 & May 2.		Subpart I - No Calculator 40 minutes 18-24 items Subpart II - Calculator Permitted 35 minutes 12-17 items Subpart III - Calculator Permitted 50 minutes 14-22 items	Per TNReady Blueprint* For the TNReady mathematics assessments, subpart 1 is designed to measure number sense, conceptual understanding, and fluency. Fluency is the result of a process involving the interplay of practice and reasoning over time as opposed to the notion of memorizing facts devoid of meaning. Fluency is a focus on calculating in a manner that is accurate, flexible, and efficient. Subpart I of TNReady is taken without a calculator for this very reason. As a state, we are measuring how efficiently students work with mathematics. In order to be successful, students need to be equipped with a deep, conceptual understanding of Tennessee's grade-level standards, strong number sense, and strategies that allow them to work mathematics fluently. It is not the expectation that all students will finish subpart I. It is the expectation that students who have a comprehensive understanding of their grade level standards and thorough ability to demonstrate fluency, number sense, and true conceptual understanding be able to complete the subpart in the allotted time.

Standards Key: Major Content Supporting Content Fluency Content

Major Content	Supporting Content	Fluency Content
6.NS.A Apply and extend previous understandings of multiplication and division to divide fractions by fractions	6.NS.B-Compute fluently with multi-digit numbers and find common factors and multiples	6.NS.B.2 Fluently divide multi-digit numbers using a standard algorithm.
*6.NS.C-Apply and extend previous understandings of numbers to the system of rational numbers	6.G.A-Solve real-world and mathematical problems involving area, surface area, and volume	6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.
*6.RP.A-Understand ratio concepts and use ratio reasoning to solve problems	6.SP.A-Develop understanding of statistical variability	
*6.EE.A-Apply and extend previous understandings of arithmetic to algebraic expressions	6.SP.B-Summarize and describe distributions	
*6.EE.B-Reason about and solve one-variable equations and inequalities		
*6.EE.C-Represent and analyze quantitative relationships between dependent and independent variables.		