8th Grade Go Math
First Nine Weeks
2021-2022

Curriculum Coverage in 8th Grade Mathematics for the 2019-2020 School Year as Outlined by TN Standards

TN Standards Major Work of the Grade:

- **Integer exponents**
- **Functions**
- **Expressions and Equations**
- **Pythagorean Theorem**

Supporting:

- **Rational Numbers**
- **Transformation**
- **Volume of cylinders, cones, and spheres**
- **Scatterplots**
- **Probability**

The Standards for Mathematical Practice

MP1. Make sense of problems and persevere in solving them.	**MP2. Reason abstractly and quantitatively.**	**MP3. Construct viable arguments and critique the reasoning of others.**	**MP4. Model with mathematics.**
MP5. Use appropriate tools strategically.	**MP6. Attend to precision.**	**MP7. Look for and make use of structure.**	**MP8. Look for and express regularity in repeated reasoning.**

TN Standards	Learning Outcomes	Instructional Focus	Content Resources
Real Number System (Allow 2 weeks for instruction, review, and assessment)			
• **8.NS.A.1** Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats	I can define rational and irrational numbers I can show that the decimal expansion of rational numbers repeats eventually or terminates.	**8.NS.A.1** Explain how irrational numbers differ from rational numbers. Determine when the decimal expansion of a	**Go Math Lesson:** * Lesson 1.1 Rational and Irrational (pg.7) * Lesson 1.2 Set of Real Numbers (pg.15) **Modify- Add in problems that include irrational fractions. For example, 2/2. Guided Practice- add T/F statement that says, "All fractions are rational numbers".**

eventually or terminates and convert a decimal expansion which repeats eventually or terminates into a rational number. • **8.NS.A.2** Use rational approximations of irrational numbers to compare the size of irrational numbers locating them approximately on a number line diagram.	I can convert a decimal expansion which repeats eventually or terminates into a rational number. I can show informally that every number has a decimal expansion. I can approximate irrational numbers as rational numbers and locate on a number line.	fraction will terminate or repeat. Show that the decimal expansion of rational numbers eventually repeats or terminates. **8.NS.A.2** Estimate the value of irrational numbers using rational approximations. Compare real numbers using the number line. Plot real numbers on the number line using their estimated values. Order real numbers using the number line. Make comparative statements about the size of irrational numbers. Estimate the value of irrational expressions.	**Give a blank Venn Diagram with numbers to sort instead of one that is already completed** ***This lesson does not incorporate irrational fractions. Giving a blank diagram would encourage more thinking on the students' part. Students could compare their own diagram with the one on page 15 to identify errors.** * Lesson 1.3 Ordering Real Numbers (pg.21) **Engage NY Task:** Module 7, Topic A, B, D Square and Cube Roots Decimal Expansions of Numbers Applications of Radicals and Roots

Integer Exponent Rules (Allow 2 weeks for instruction, review, and assessment)			
• **8.EE.A.1** Know and apply the properties of integer exponents to generate numerical expressions.	I can know and demonstrate that a number raised to the exponent of 0 is always 1. I can know and demonstrate that a number with a negative exponent is the reciprocal (to make the exponent positive) I can apply the properties of integer exponents: -to multiply numbers with like bases, add the exponents -to divide numbers with like bases, subtract the exponents -to raise a power to a power, keep the base, multiply the exponents	**8.EE.A.1** Use properties of integer exponents to generate equivalent numerical expressions (e.g., product rule, quotient rule, power rule, power of a product rule, zero exponent rule, and negative exponent rule). Rewrite numerical expressions with fractional bases raised to a power.	**Go Math Lesson:** * Lesson 2.1 Integer Exponents (pg. 33) **Modify- Eliminate p. 35 (you can use for enrichment Eliminate #18 and #19 on p. 36** ***p. 35 does not apply to our standard TOO MUCH INFORMATION FOR 1 LESSON – supplement additional practice Need additional instruction on Zero Property and Negative Exponents** **Engage NY Task:** Module 1, Topic A, Exponential Notation and Properties of Integer Exponents

• **8.EE.A.2** Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$ where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes.	I can solve the equation $x^2 = p$, by using the inverse operation (square root) I can solve the equation $x^3 = p$, by using the inverse operation (cube root) I can demonstrate knowledge of perfect squares from 1 – 13 I can demonstrate knowledge of perfect cubes from 1 – 5.	**8.EE.A.2** Identify the square root of a non-perfect square as irrational. Identify the cube root of a non- perfect cube as irrational. Evaluate square roots of small perfect square numbers. Evaluate cube roots of small, perfect cube numbers. Solve equations that require finding the square root of a number of the form, $x^2 = p$ where p is a positive rational small perfect square number. Solve equations that require finding the cube root of a number of the form, $x^3 = p$, where p is a positive rational small perfect cube number.	

Scientific Notation (Allow 2 weeks for instruction, review, and assessment)			
• **8.EE.A.3** Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities and to express how many times as much one is than the other. • **8.EE.A.4** Perform operations with numbers expressed in scientific notation including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for very large or very small quantities.	I can understand that scientific notation is a number between 1 and 10 times a power of 10. I can expand numbers written in scientific notation form to standard form. I can change numbers from standard form to scientific notation. I can express how many times a number is than the other (by dividing). I can perform multiplication and division on numbers written in scientific notation by following the specified instructions. I can perform addition or subtraction on numbers written in scientific notation by expanding to standard form and then performing the operation.	**8.EE.A.3** Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities. Indicate how many times larger one number represented in scientific notation is than a second number also expressed in scientific notation. **8.EE.A.4** Choose units of appropriate size expressed in scientific notation to represent measurements of very large or very small quantities. Perform operations with numbers expressed in scientific notation including problems where both decimal and scientific notation are used.	**Go Math Lesson:** * Lesson 2.2 Scientific Notation with Positive Powers of 10 (pg. 39) * Lesson 2.3 Scientific Notation with Negative Powers of 10 (pg. 45) **Lesson 2.2 and 2.3 can be combined.** * Lesson 2.4 Operations with Scientific Notation (pg. 51) **Engage NY Task:** Module 1, Topic B, Magnitude and Scientific Notation

Solving Linear Equations (allow 3 weeks for instruction, review, and assessment)			
• **8.EE.C.7** Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equations into simpler forms, until an equivalent equation of the form x = a, a = a, or a =b results (where a and b are different numbers).	I can understand, discuss, and use the correct academic vocabulary when talking about algebraic equations. I can solve equations using inverse operations. I can solve 1 –step and 2-step equations using inverse operations. I can simplify algebraic expressions by using the distributive property and/or collecting like terms. I can solve equations whose solutions require expanding expressions using the distributive property and/or collecting like terms. I can solve equations with variables on both sides of the equal sign.	**8.EE.C.7** Give examples of linear equations in one variable having one solution, infinitely many solutions, or no solution. Solve linear equations with rational coefficients whose solutions require expanding expressions using the distributive property and collecting like terms.	**Go Math Lesson:** * Lesson 7.1 Equations with Variables on Both Sides (pg.197) * Lesson 7.2 Equations with Rational Numbers (pg.203) * Lesson 7.3 Equations with the Distributive Property (pg.209) * Lesson 7.4 Equations with Many Solutions or No Solutions (pg.215) **Delete- Use https://www.engageny.org/resource/grade-8-mathematics-module-4-topic-overview Replace 7.4 with Module 4-lesson 6 & 7 from Engage NY** ***This is major work and the Go Math lesson does not give enough practice. Focus on learning the true meaning of different solution types instead of procedural and memorization of steps.** **Engage NY Task:** Module 4, Topic A, Writing and Solving Linear Equations

	I can solve equations with Variables on both sides AND combining like terms and distributive property I can give examples of linear equations in one variable with one solution and show that the given example equation has one solution by successively transforming the equation into an equivalent equation of the form x = a I can give examples of linear equations in one variable with infinitely many solutions and show that the given example has infinitely many solutions by successively transforming the equation into an equivalent equation of the form a=a I can give examples of linear equations in one variable with no solution and show that the given example has no solution by successively transforming the equation into an equivalent		

	equation of the form b=a, where a and b are different numbers.		
Resource Toolbox: **Additional Resources** Mathematics Assessment Project Illustrative Mathematics Virtual Nerd Khan Academy Internet 4 Classrooms Teacher Tube Kuta Software Illuminations			