



**7<sup>th</sup> Grade Math  
First Nine Weeks  
2019-2020**

Curriculum Coverage in 7<sup>th</sup> Grade Mathematics for the 2019-2020 School Year as Outlined by TN Standards.

TN Standards Major Work of the Grade:

- Operations with fractions
- Proportional Relationships
- Equivalent Expressions from properties
- Contextual problems involving equations and inequalities

Supporting:

- Geometrical figures
- Angle measure, area, surface area, volume
- Random sampling
- Compare two populations
- Probability
- Data Sets

**The Standards for Mathematical Practice**

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

**1<sup>st</sup> Nine Weeks**

<b>TN Standards</b>	<b>Learning Outcomes</b>	<b>Instructional Focus</b>	<b>Content</b>
<b>Rational Numbers</b> (Allow 6 weeks for instruction, review, and assessment)			
7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and	I can...  Describe situations in which a number and its opposite combine to make 0 (additive inverse).	<b>Students with a level 3 understanding of this standard will most likely be able to:</b>  Generate a number line diagram that represents a given addition	<b>GO Math:</b> Lesson 1.1. Adding Integers with the same sign <del>Delete</del> <b>First, add a lesson addressing 7.NS.A.1a (Ex. EngageNY 7<sup>th</sup> Grade Module 2 lesson 1)</b>

<p>subtraction on a horizontal or vertical number line diagram.</p> <p>a. Describe situations in which opposite quantities combine to make 0.</p> <p>b. Understand <math>p + q</math> as the number located a distance <math> q </math> from <math>p</math>, in the positive or negative direction depending on whether <math>q</math> is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.</p> <p>c. Understand subtraction of rational numbers as adding the additive inverse, <math>p - q = p + (-q)</math>. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.</p>	<p>Tell the absolute value if given a number and a number line. Explain why absolute value is always a positive value.</p> <p>Add positive and negative numbers.</p> <p>Describe real-world contexts using integers.</p> <p>Subtract positive and negative numbers. Explain/demonstrate that subtracting is the same as adding a negative.</p> <p>Use the commutative and associative properties of addition to add and subtract rational numbers.</p>	<p>or subtraction problem of rational numbers.</p> <p>Add and subtract rational numbers.</p> <p>Explain that the sum <math>p + q</math> is located a distance <math> q </math> from <math>p</math> and when it goes in the negative direction and when it goes in the positive direction.</p> <p>Create a real world context to represent a given sum or difference of rational numbers.</p> <p>Identify that the distance between two rational numbers on a number line is the absolute value of their difference.</p>	<p>Replace with <u>EngageNY 7<sup>th</sup> Grade Module 2 Lessons 2 and 3</u>. This standard (7.NS.A.1a) is not fully addressed in this curriculum. The Level 3 on the TN Focus Docs calls for students to “Explain that the sum <math>p + q</math> is located a distance (<math>q</math>) from <math>p</math> and when it goes in the negative direction and when it goes in the positive direction.” The lesson does not address this concept. Lesson 1.2. Adding Integers with different signs <b>Delete</b> Replace with <u>Engage 7<sup>th</sup> Grade Module 2 lesson 1.2, and 3</u>. This standard was not fully addressed. The Level 3 understanding of the TN Focus Docs calls for students to “Explain that the sum of <math>p + q</math> is located a distance (<math>q</math>) from <math>p</math> and when it goes in the negative direction and when it goes in the positive direction.” Lesson 1.3 Subtracting Integers <b>Delete</b> Replace with <u>Engage Module 2 Lesson 5</u> This standard (7.NS.A.1c) is not fully addressed in the curriculum The level 3 understanding of the TN focus document calls for the student to “Understand subtraction of rational numbers as adding the additive inverse, <math>p - q = p + (-</math></p>
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<p>d. Apply properties of operations as strategies to add and subtract rational numbers.</p>			<p>q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.” The text does not address this concept fully.</p> <p>Lesson 1.4 Applying Addition and Subtraction of Integers</p> <p><b>Modify</b></p> <p>In examples 2 and 3, replace the steps and explanations with the following questions: ! Analyze information: What do we know? What information do we have? ! Formulate a plan: What are we trying to solve? What strategy could we use to solve? ! Solve: No change ! Justify and evaluate: Is your answer reasonable? How do you know?</p> <p>In application problems, students should be doing the work of applying their knowledge on their own. The steps provided overscaffold and remove the students’ opportunity to think and solve.</p> <p><b>Engage NY Task:</b> <a href="#">Module 2, Topic A, B, C</a> <a href="#">Addition and Subtraction of Integers and Rational Numbers</a></p>
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			<p><a href="#">Multiplication and Division of Integers and Rational Numbers</a> <a href="#">Applying Operations with Rational Numbers to Expressions and Equations</a></p>
<p>7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.</p> <p>a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as <math>(-1)(-1) = 1</math> and the rules for multiplying signed numbers. Interpret products of</p>	<p><b>I can...</b> Multiply and divide integers – rules for multiplying and dividing integers.</p> <p>Explain that <math>-(p/q) = -p/q = p/-q</math> (this is important for solving equations)</p> <p>Use the distributive property to create equivalent expressions</p> <p>Describe products and quotients of integers by describing real-world situations.</p>	<p><b>Students with a level 3 understanding of this standard will most likely be able to:</b></p> <p>Multiply and divide a wide variety of rational numbers.</p> <p>Interpret products and quotients of rational numbers by describing real- world contexts.</p> <p>Apply properties of operations as strategies to multiply and divide rational numbers.</p> <p>Create a real-world context to represent a given product or quotient of rational numbers.</p>	<p>GO Math: Lesson 2.1 Multiplying Integers <b>It is important to note that this lesson does not discuss the distributive property. We will add a lesson later to ensure students understand that properties of operations can be used with integers and rational numbers.</b> Lesson 2.2 Dividing Integers Lesson 2.3 Applying Integer Operations <b>Modify- Applying Operations with Rational Numbers to Expressions and Equations</b> <u><a href="#">EngageNY, Module 2, Topic C</a></u> <b>In application problems, students should be doing the work of applying their knowledge on their own. The steps</b></p>



<p>involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions)</p>	<p>Identify complex fractions (a complex fraction has a fraction in either the numerator, denominator, or both).</p> <p>Simplify complex fractions.</p>	<p><b>Students with a level 3 understanding of this standard will most likely be able to:</b></p> <p>Solve multi-step real-world problems involving the four operations with rational numbers.</p>	<p><b>we are able to divide rational numbers to convert them to decimals.</b></p> <p>Lesson 3.2 Adding Rational Numbers <b>Modify- Remove steps from examples. Pose questions without steps. On “your turn” remove number lines. Instead, have students draw their own number lines to solve these problems. Standard 7.NS.A.1b calls for students to understand addition of rational numbers, and providing steps removes their opportunity to justify and explain. It is important that students have opportunities to practice on number lines. The number lines provided for the “your turn” problems, however, reveal the direction of the addition, so students do not need to understand why they are moving in a certain direction. For example, on your turn #3, if a student thought that they should move to the right, they physically would not be able to so they move left by default. On your turn #6, students could rewrite <math>-8 + 5</math> as <math>5 - 8</math>, but the number line doesn’t allow them to plot 5. This reinforces that there is only one correct way to solve the problem, which is not true.</b></p> <p>Lesson 3.3 Subtracting Rational Numbers</p>
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			<p><b>Modify-</b> Remove steps from examples. Pose questions without steps. On “your turn” remove number lines. Instead, have students draw their own number lines to solve these problems.</p> <p>Standard 7.NS.A.1c calls for students to understand subtraction of rational numbers, and providing steps removes their opportunity to justify and explain. It is important that students have opportunities to practice on number lines. The number lines provided for the “your turn” problems, however, reveal the direction of the addition, so students do not need to understand why they are moving in a certain direction.</p> <p>Lesson 3.4 Multiplying Rational Numbers <b>Delete -Replace with <u>EngageNY, Module 2, Lessons 11, 15, and 16.</u></b></p> <p>Standards 7.NS.A.2a and c are not fully addressed in this lesson</p> <p>Lesson 3.5 Dividing Rational Numbers- <b>Delete- Replace with <u>EngageNY, Module 2, Lessons 12, 15, and 16</u></b></p> <p>Standards 7.NS.A.2a and c are not fully addressed in this lesson</p> <p>Lesson 3.6 Applying Rational Number Operations <b>Delete</b></p>
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			Standard 7.NS.A.3 or 7.EE.B.3 are not fully addressed. They are addressed in other units
<b>Equations and Inequalities</b> <b>(Allow 5 - 6 weeks for instruction, review, and assessment)</b>			
7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	<p>I can.....</p> <p>Apply properties of operations and work with rational numbers to write equivalent expressions</p> <p>Demonstrate understanding of properties by rewriting expressions in a different expression.</p> <p>EX: <math>2(3 + 6) = 2(3) + 2(6) = 6 + 12 = 18</math></p> <p><math>2(X + 6) = 2(X) + 2(6) = 2X + 12</math></p>	<p><b>Students with a level 3 understanding of this standard will most likely be able to:</b></p> <p>Add, subtract, factor, or expand linear expressions with rational coefficients.</p>	<p>GO Math: Lesson 6.1 Algebraic Expressions <b>Modify Expressions and Equations.</b> <b><u>EngageNY, Module 3</u></b> <b>This lesson needs more practice with rational numbers and application problems.</b></p>

<p>7.EE.A.2 Understand that rewriting an expression in different forms in a contextual problem can provide multiple ways of interpreting the problem and how the quantities in it are related.</p>	<p>I can.... Rewrite an expression in different forms in a contextual problem in order to understand all of the parts of the problem. Ex. Shoes are on sale at a 25% discount. How is the discounted price P related to the original cost C of the shoes? <math>C - .25C = P</math> In other words, P is 75% of the original cost for <math>C - .25C</math> can be written as <math>.75C</math></p>	<p><b>Instructional Focus:</b></p> <p>Students should be able to generate an expression resulting from a real-world problem and explain the parts of the expressions in terms of the context. Students should also be able to generate multiple equivalent expressions and justify the use of one over the other.</p> <p>Additionally, they should be able to provide an explanation of the connection that exists between the resultant expressions. Justifications and explanations should be in both verbal and written</p>	<p>GO Math Lessons: Lesson 6.1 Algebraic Expressions <b>Modify- See EngageNY link below:</b> Lesson 5.2 Rewriting Percent Expressions <b>Modify, EngageNY, Module 4 Lesson 6, Standard 7.EE.A.2 is not fully addressed.</b> <b>Engage NY Task</b> <b><u>Module 3, Topic A</u></b> <b><u>Use Properties of Operations to Generate Equivalent Expressions</u></b></p>



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		form using precise mathematical vocabulary.	
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**Resource Toolbox:**

<http://www.kutasoftware.com/free.html>

<http://illuminations.nctm.org/>

<http://cuacs8.mck.ncsu.edu/mathsampleitems/main.html>

[http://www.ilovemath.org/index.php?option=com\\_docman](http://www.ilovemath.org/index.php?option=com_docman)

<http://www.math-aids.com>

<http://www.commoncoresheets.com>

<http://www.mathworksheetsland.com>