




The purpose of this tool is to help educators understand each of the grade level standards and how those standards connect to the students' overall preparation for college and career readiness.

The NMIS is a teacher-influenced tool, designed to provide instructional planning support at the programmatic level for districts and instructional level for teachers. Its foundation stems from the vision and mission of the PED and came into existence to assure that students in NM will be engaged in a culturally and linguistically responsive educational system that meets the social, emotional, and academic needs of ALL students. This is also rooted in the belief that all students must have access to on-grade-level standards, focusing on acceleration. The purpose of this tool is to help educators understand each of the grade level standards and how those standards connect to the students' overall preparation for college and career readiness.

Standards are defined as the most critical prerequisite skills and knowledge. This document is color-coded to reflect both anchor and priority standards. Though previous emphasis was placed on priority standards to address lost learning due to COVID-19, New Mexico teachers should note that moving forward, while priority standards allow for acceleration of learning, **all** standards should be addressed in instruction throughout the school year.


In this guide you will find:


- A [breakdown](#) of each of the grade level standards within the cluster, including:
  - Standards of Mathematical Practice
  - Common Misconceptions
  - Identification of Priority Standards, as identified by NMPED.
  - Level of Rigor Identification
- Sample aligned [assessment](#) items
- [Suggested Student Discourse Guide](#)
- A [multilayered system of supports \(MLSS\) and culturally and linguistically responsive instruction \(CLR\) guide](#)

Key		
	<i>Priority Standard</i>	Priority standards, as identified by NMPED, are denoted with red highlighting. Priority standards are the most critical prerequisite skills and knowledge a student needs. This does not mean that these are only standards required to be taught, just these are the standards that will allow for the acceleration the students of New Mexico need during this time.
	<i>Conceptual Understanding</i>	Conceptual Understanding standards help students build a deep understanding of the <b>how</b> and <b>why</b> of mathematics.
	<i>Application</i>	Application standards help students identify the appropriate concepts and skills to tackle <b>novel real-world problems</b> .
	<i>Procedural Skill and Fluency</i>	Procedural standards help students develop <b>efficiency</b> and <b>accuracy</b> in computations.

## Standards Breakdown

- Use properties of operations to generate equivalent expressions
  - [7.EE.A.1](#)
  - [7.EE.A.2](#)
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
  - [7.EE.B.3](#)
  - [7.EE.B.4](#)

Grade	CCSS Domain	CCSS Cluster
<b>7</b>	<b>EXPRESSIONS &amp; EQUATIONS</b>	Use properties of operations to generate equivalent expressions
 <b>Cluster Standard: 7.EE.A.1</b>		
<b>Standard</b>		<b>Standards for Mathematical Practice</b>
Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.		<ul style="list-style-type: none"> <li>● <b>SMP 2:</b> Reason abstractly and quantitatively.</li> <li>● <b>SMP 6:</b> Attend to precision.</li> </ul>
<b>Clarification Statement</b>		<b>Students Who Demonstrate Understanding Can...</b>
<ul style="list-style-type: none"> <li>● Students apply properties of operations to add, subtract, factor and expand linear equations with rational coefficients. Students then become able to rewrite expressions in different forms to solve a multi-step problem, explain the quantities and graph a solution.</li> </ul>		<ul style="list-style-type: none"> <li>● Identify properties of operations (Associative, Commutative, and Distributive).</li> <li>● Use properties of operations to create equivalent expressions.</li> <li>● Write expressions in standard or expanded form.</li> </ul>
<b>DOK</b>		<b>Blooms</b>
1-2		Remember, Understand

Grade	CCSS Domain	CCSS Cluster
<b>7</b>	<b>EXPRESSIONS &amp; EQUATIONS</b>	Use properties of operations to generate equivalent expressions.
 <b>Cluster Standard: 7.EE.A.2</b>		
Standard		Standards for Mathematical Practice
Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."		<ul style="list-style-type: none"> <li>● <b>SMP 5:</b> Use appropriate tools strategically.</li> <li>● <b>SMP 7:</b> Look for and make use of structure.</li> </ul>
Clarification Statement		Students Who Demonstrate Understanding Can...
Students apply properties of operations to add, subtract, factor and expand linear equations with rational coefficients. Students then become able to rewrite expressions in different forms to solve a multi-step problem, explain the quantities and graph a solution.		<ul style="list-style-type: none"> <li>● Use properties to create equivalent expressions.</li> <li>● Rewrite an expression in different forms.</li> <li>● Demonstrate how quantities in an equation are related.</li> <li>● Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide.</li> <li>● Solve real-life and mathematical problems</li> </ul>
DOK		Blooms
1-2		Remember, Understand

### Common Misconceptions

- When an expression has several steps, sometimes students forget to follow the order of operation.

Grade	CCSS Domain	CCSS Cluster
7	<b>EXPRESSIONS &amp; EQUATIONS</b>	Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
<b>Cluster Standard: 7.EE.B.3</b>		
<b>Standard</b>		<b>Standards for Mathematical Practice</b>
<p>Solve multi-step real life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional <math>\frac{1}{10}</math> of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar <math>9\frac{3}{4}</math> inches long in the center of a door that is <math>27\frac{1}{2}</math> inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.</p>		<ul style="list-style-type: none"> <li>● <b>SMP 5:</b> Use appropriate tools strategically.</li> <li>● <b>SMP 8:</b> Look for and express regularity in repeated reasoning.</li> </ul>
<b>Clarification Statement</b>		<b>Students Who Demonstrate Understanding Can...</b>
<ul style="list-style-type: none"> <li>● Students apply properties of operations to add, subtract, factor and expand linear equations with rational coefficients. Students then become able to rewrite expressions in different forms to solve a multi-step problem, explain the quantities and graph a solution</li> </ul>		<ul style="list-style-type: none"> <li>● Solve multi-step real life and mathematical problems that include positive and negative rational numbers.</li> <li>● Convert between fractions, decimals, and percentages.</li> <li>● Use properties of operations as needed to solve the problems.</li> <li>● Justify the reasonableness of their answers using estimation</li> </ul>
<b>DOK</b>		<b>Blooms</b>
2		Remember, Understand

Grade	CCSS Domain	CCSS Cluster
7	<b>EXPRESSIONS &amp; EQUATIONS</b>	Solve real-life and mathematical problems using numerical and algebraic expressions and equations
<b>Cluster Standard: 7.EE.B.4</b>		
<b>Standard</b>		<b>Standards for Mathematical Practice</b>
<p>Use variables to represent quantities in a real world or mathematical problem and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p> <p>A: Solve word problems leading to equations of the form <math>px + q = r</math> and <math>p(x + q) = r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</p> <p>B: Solve word problems leading to inequalities of the form <math>px + q &gt; r</math> or <math>px + q &lt; r</math>, where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make and describe the solutions</p>		<ul style="list-style-type: none"> <li>● <b>SMP 1:</b> Make sense of problems and persevere in solving them.</li> <li>● <b>SMP 3:</b> Construct viable arguments and critique the reasoning of others.</li> </ul>
<b>Clarification Statement</b>		<b>Students Who Demonstrate Understanding Can...</b>
<ul style="list-style-type: none"> <li>● Students apply properties of operations to add, subtract, factor and expand linear equations with rational coefficients. Students then become able to rewrite expressions in different forms to solve a multi-step problem, explain the quantities and graph a solution.</li> </ul>		<ul style="list-style-type: none"> <li>● Write equations in the appropriate form.</li> <li>● Solve and graph inequalities</li> <li>● Apply the inequality and the solution in the context of the problem</li> </ul>
<b>DOK</b>		<b>Blooms</b>
1-2		Remember, Understand

## Common Misconceptions

- Students may have difficulty with representing numbers in different forms such as moving from a percentage to a fraction.
- Students may need to support scaffolding multi-step problems that require steps that build upon each other.

**Student Discourse Guide**

- Purposeful, rich classroom discourse offers students the opportunity to express their ideas, thinking, and to critique the reasoning of others in a variety of ways (writing, drawing, verbal). Purposeful implementation of classroom discourse allows students to activate funds of knowledge and to refine their mathematical understanding. When students have frequent opportunities for discourse they find various paths to solutions and reveal knowledge or misunderstandings to educators. The process also allows educators to honor students' culture, lived experiences and evolving math identities.
- Discourse that focuses on tasks that promote reasoning and problem solving is a primary mechanism for developing conceptual understanding and meaningful learning of mathematics (Michaels, O'Connor, and Resnick, 2008)

Domain: <b>Expressions and Equations</b>	Strand: <b>Use properties of operations to generate equivalent expressions</b>
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**Suggested Student Discourse Questions**

<ul style="list-style-type: none"> <li>● How can I justify that multiple representations in the context of a problem are equivalent expressions?</li> <li>● How do I assess the reasonableness of my answer?</li> </ul>	<ul style="list-style-type: none"> <li>● Describe how to write equivalent expressions for a real world situation</li> <li>● How can I use the properties of equality to express an equation in a different but equivalent way?</li> </ul>
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Domain: <b>Expressions and Equations</b>	Strand: <b>Solve real-life and mathematical problems using numerical and algebraic expressions and equations</b>
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**Suggested Student Discourse Questions**

<ul style="list-style-type: none"> <li>● How can I formulate and use different strategies to solve one and two-step equations?</li> <li>● Would the two-step equation yield the same solution if you reverse the order of the operations when solving it?</li> </ul>	<ul style="list-style-type: none"> <li>● How do we use variables to represent unknown quantities in mathematical problems to construct and solve simple inequalities?</li> <li>● How should we deal with negative coefficients, when solving inequalities?</li> </ul>
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## ASSESSMENT GUIDE

- [Use properties of operations to generate equivalent expressions.](#)
- [Solve real-life and mathematical problems using numerical and algebraic expressions and equations.](#)

Grade	CCSS Domain	CCSS Strand
<b>7</b>	<b>EXPRESSIONS &amp; EQUATIONS</b>	Use properties of operations to generate equivalent expressions
<b>Sample Task #1 (Constructed Response)</b>		
<p>What number would you multiply <math>(6x - y + 4)</math> by so that the result is an equivalent expression to <math>(3x + 9x) - (2y - 8)</math>?</p>		
<b>Sample Task #2 (Multiple Choice)</b>		
<p>A tire store has a sale: buy 3 tires, get a 4th tire for free. The cost of one tire is <math>x</math> dollars.</p> <p>Which of these expressions could be used to find the average cost per tire during this sale? Select <b>all</b> that apply.</p> <p>Ⓐ <math>\frac{x+x+x+0}{4}</math></p> <p>Ⓑ <math>\frac{x+x+x}{3}</math></p> <p>Ⓒ <math>x - 0.25x</math></p> <p>Ⓓ <math>x - \frac{3}{4}</math></p> <p>Ⓔ <math>0.75x</math></p> <p>Ⓕ <math>0.25x</math></p>		

Grade	CCSS Domain	CCSS Strand
<b>7</b>	<b>EXPRESSIONS &amp; EQUATIONS</b>	Solve real-life and mathematical problems using numerical and algebraic expressions and equations
<b>Sample Task #1 (Constructed Response)</b>		
<div style="border: 1px solid black; padding: 10px;"> <p>Brian received a \$60 gift card for an art store. He used his gift card to buy canvases and tubes of paint.</p> <ul style="list-style-type: none"> <li>• Brian bought 5 tubes of paint for \$6.25 each.</li> <li>• He bought 2 canvases for \$26.00 each.</li> <li>• Brian used a coupon for 20% off his entire purchase.</li> <li>• After the coupon was used, the store added 5% sales tax.</li> </ul> <p><b>a.</b> After using his entire gift card, how much money did Brian still need to pay? Show your work or explain how you know.</p> <p><b>b.</b> Brian realized that he did not have any extra money, but he still needs to buy the 2 canvases. If Brian could pay using only the gift card, what is the maximum number of tubes of paint he could buy? Show your work or explain how you know.</p> </div>		
<b>Sample Task #2 (Multiple Choice)</b>		
<div style="border: 1px solid black; padding: 10px;"> <p>Erica goes to a carnival.</p> <ul style="list-style-type: none"> <li>• The admission cost is \$5.</li> <li>• Each game ticket costs \$0.50.</li> <li>• Erica can spend no more than \$20 at the carnival.</li> </ul> <p>Which inequality can be used to find the number of game tickets, <math>t</math>, Erica can buy?</p> <p>(A) <math>0.50t + 5 \geq 20</math></p> <p>(B) <math>5 + 0.50t \leq 20</math></p> <p>(C) <math>20 - 0.50t \leq 5</math></p> <p>(D) <math>0.50t - 20 \geq 5</math></p> </div>		

## MLSS AND CLR GUIDE

- [Use properties of operations to generate equivalent expressions.](#)
- [Solve real-life and mathematical problems using numerical and algebraic expressions and equations.](#)

CCSS Domain		CCSS Cluster
Expressions and Equations	Use properties of operations to generate equivalent expressions	
<b>Culturally and Linguistically Responsive Instruction</b>		
<b>Relevance to Families and Communities</b>	During a unit focused on using properties of operations to generate equivalent expressions, consider options for learning from your families and communities the cultural and linguistic ways this mathematics exists outside of school to create stronger home to school connections for students, for example, writing expressions that represent situations your family and community might experience. Students should make sure they know what the real world meaning each part of the expression represents (term, operation, variable, etc.) Then students can create an equivalent expression and discuss what the new parts of the expression mean in reference to your family or community and the original expression.	
<b>Cross-Curricular Connections</b>	<b>Science:</b> Students can write number sentences for conservation of energy of a system.	
<b>Validate/Affirm/Build/Bridge</b>	<ul style="list-style-type: none"> <li>• <i>How can you design your mathematics classroom to intentionally and purposefully legitimize the home culture and languages of students and reverse the negative stereotypes regarding the mathematical abilities of students of marginalized cultures and languages?</i></li> <li>• <i>How can you create connections between the cultural and linguistic behaviors of your students' home culture</i></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Eliciting and Using Evidence of Student Thinking:</b> Eliciting and using student thinking can promote a classroom culture in which mistakes or errors are viewed as opportunities for learning. When student thinking is at the center of classroom activity, "it is more likely that students who have felt evaluated or judged in their past mathematical experiences will make meaningful contributions to the classroom over time." For example, when studying, using properties of operations to generate equivalent expressions eliciting and using student thinking is critical because when generating equivalent expressions students will be applying different strategies and skills such as factoring, expanding and combining like terms. Students may not feel that they have the academic vocabulary to explain their thought process, but they can show their work through acting it out or</li> </ul>

	<p><i>and language, the culture and language of school mathematics to support students in creating mathematical identities as capable mathematicians that can use mathematics within school and society?</i></p>	<p>simplifying the expressions which will provide evidence of their thinking.</p>
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## Planning for Multi-Layered System of Supports

### Vertical Alignment

<i>Previous Learning</i>	<i>Current Learning</i>	<i>Future Learning</i>
<ul style="list-style-type: none"> <li>In 6th grade, learners extend their knowledge of creating equivalent expressions to include situations in which a knowledge of the rules of integers are needed. In 6th grade, learners extend their understanding of repeated addition as multiplication (representing <math>3 + 3 + 3 + 3</math> as <math>4 \times 3</math>), to simplify variable expressions (<math>j + j + j + j</math>) written as <math>4j</math>.</li> <li>In 6th grade, using order of operations, learners broaden their work solving equations and inequalities to include those with more than one step, as well as those with negative coefficients.</li> </ul>	<ul style="list-style-type: none"> <li>In 7th grade, learners will develop an understanding of operations with rational numbers when working with expressions and linear equations. In 7th grade, learners will apply knowledge of working with expressions and equations to solve problems involving scale drawings and informal geometric constructions, and work with two- and three-dimensional shapes to solve problems involving area, surface area, and volume. In 7th grade, learners will use vertical angles, adjacent angles, angles on a line, and angles at a point in a multi-step problem to write and solve equations for an unknown angle in a figure.</li> </ul>	<ul style="list-style-type: none"> <li>In 8th grade, learners will solve linear equations in one variable. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. In 8th grade, learners will use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.</li> </ul>

### Suggested Instructional Strategies

#### Pre-Teach

<i>Level of Intensity</i>	<i>Essential Question</i>	<i>Examples</i>
Targeted	<i>What pre-teaching will</i>	<ul style="list-style-type: none"> <li>In grade 6, students learned to read and</li> </ul>

	<p><i>prepare students to productively struggle with the mathematics for this cluster within your HQIM?</i></p>	<p>interpret parts of an expression by using mathematical terms and viewing expressions as single entities. Review definition of expression contrasted to equations. Identify parts of an expression. Review and practice Order of Operations</p> <ul style="list-style-type: none"> <li>For example, some learners may benefit from targeted pre-teaching that rehearses new mathematical language when studying writing, reading, evaluating algebraic expressions and identifying/generating equivalent expressions because this cluster requires the acquisition of a considerable amount of new vocabulary. The terms that are used to identify the parts and types of expressions will support students in becoming proficient in explaining and discussing many new concepts encompassed in expressions, equations, and inequalities. This is the first experience students have with things such as variables, coefficients, constants, and they will also be learning how to extend previous learning of exponents, order of operations, sums, differences products, quotients, equivalent, like and unlike terms, etc.</li> </ul>
<p>Intensive</p>	<p><i>What critical understandings will prepare students to access the mathematics for this cluster?</i></p>	<p><i>3.OA.B.5: This standard provides a foundation for work with using properties of operations to generate equivalent expressions because this standard lays the foundation for using properties as strategies to multiply and divide. At this level students do not have to know the name of the properties, but they are using them to develop commutative and associative properties of multiplication with whole numbers. If students have unfinished learning within this standard, based on assessment data, consider ways to provide intensive pre-teaching support prior to the start of the unit to ensure students are ready to access grade level instruction and assignments.</i></p>
<p><b>Universal Support Framework</b></p>		
<p>A student should know/understand...</p>	<p>A student should be able to do...</p>	<p><b>Potential Scaffolds</b></p>
<ul style="list-style-type: none"> <li>The properties of operations</li> </ul>	<ul style="list-style-type: none"> <li>Use conventions about the order of</li> </ul>	<ul style="list-style-type: none"> <li>Build on students' experience with the following skills:</li> </ul>

<p>(commutative, associative, identity, distributive) can be expanded to include rational numbers (fractions, negative integers).</p> <ul style="list-style-type: none"> <li>• There can be more than one expression equivalent to a given expression</li> </ul>	<p>operations and properties of operations to create equivalent expressions, including adding, subtracting, factoring, and expanding linear expressions.</p> <ul style="list-style-type: none"> <li>• Combine like terms with rational coefficients.</li> <li>• Recognize and explain the meaning of a given expression and its component parts in terms of a context.</li> </ul>	<ul style="list-style-type: none"> <li>○ Create equivalent expressions using integer rules.</li> <li>○ Understand repeated addition as multiplication</li> <li>○ Use order of operations to solve equations and inequalities involving more than one step.</li> <li>○ Use order of operations to solve equations and inequalities involving negative coefficients.</li> <li>○</li> <li>• Cognitive Strategies <ul style="list-style-type: none"> <li>○ Repeatedly model the strategies</li> <li>○ Monitor the students' use of the strategies</li> <li>○ Provide feedback to students</li> <li>○ Teach self-questioning and self-monitoring strategies</li> <li>○ Introduce multiple means of representation for mathematical ideas</li> </ul> </li> <li>• Encourage students to use alternative tools to better access the grade level content. Examples include: <ul style="list-style-type: none"> <li>○ Graphic Organizer with Number Properties</li> <li>○ Colored Pencil</li> </ul> </li> </ul>
<b>Re-Teach</b>		
<b><i>Level of Intensity</i></b>	<b><i>Essential Question</i></b>	<b><i>Examples</i></b>
Targeted	What formative assessment data (e.g., tasks, exit tickets, observations) will help identify content needing to be revisited during a unit?	For example, students may benefit from re-engaging with content during a unit on using properties of operations to generate equivalent expressions by clarifying mathematical ideas and/or concepts through a short mini lesson because combining like terms, factoring and expanding linear equations are examples of using properties of operations. Having an explicit mini lesson on the distributive property as a method for expanding linear equations will support students in understanding the connection between the properties and generative equivalent expressions.

Intensive	What assessment data will help identify content needing to be revisited for intensive interventions?	For example, some students may benefit from intensive extra time during and after a unit using properties of operations to generate equivalent expressions by helping students move from specific answers to generalizations for certain types of problems because properties of operations are generalized statements to help students understand the structure and pattern of expressions. Taking time to allow students to make the generalization from specific examples will help students deepen their understanding of using the properties to generate equivalent expressions.
<b>Extension</b>		
<i>Essential Question</i>		<i>Examples</i>
What type of extension will offer additional challenges to 'broaden' your student's knowledge of the mathematics developed within your HQIM?		For example, some learners may benefit from an extension such as open-ended tasks linking multiple disciplines when studying using properties of operations to generate equivalent expressions because the properties of operations are applied to find structure and patterns for students in math. Other disciplines have their own concepts that support students when applied. Understanding the concept of going from generalizations to specific examples and then from specific examples to generalizations can help students deepen their understanding of the need for properties. For example, the classification system in Science.

<i>CCSS Domain</i>	<i>CCSS Cluster</i>
<b>Expressions and Equations</b>	<b>Solve real-life and mathematical problems using numerical and algebraic expressions and equations</b>
<b>Culturally and Linguistically Responsive Instruction</b>	
<b>Relevance to Families and Communities</b>	During a unit focused on solving real life and mathematical problems using numerical and algebraic expressions and equations, consider options for learning from your families and communities the cultural and linguistic ways this mathematics exists outside of school to create stronger home to school connections for students, for example, learning about calculating the cost of bills within a budget for a family. Students could write an expression or equation for each bill for the month. Students could even create an inequality with the amount of money set aside for bills so they could determine the

	amount of discretionary money left after paying the bills.	
<b>Cross-Curricular Connections</b>	<p><b>Science:</b></p> <ul style="list-style-type: none"> <li>Collaborate with peers to define or describe an issue in society and how to evaluate solutions.</li> <li>Run tests of solutions and change designs as needed.</li> <li>Construct scientific arguments for how uneven distributions of Earth's Mineral, energy, groundwater resources are the result of past and current geoscience processes. Examples: Metal ores, volcanic activity, soil weathering, rock deposits, mining by humans.</li> </ul>	
<b>Validate/Affirm/Build/Bridge</b>	<ul style="list-style-type: none"> <li><i>How can you design your mathematics classroom to intentionally and purposefully legitimize the home culture and languages of students and reverse the negative stereotypes regarding the mathematical abilities of students of marginalized cultures and languages?</i></li> <li><i>How can you create connections between the cultural and linguistic behaviors of your students' home culture and language, the culture and language of school mathematics to support students in creating mathematical identities as capable mathematicians that can use mathematics within school and society?</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Facilitating Meaningful Mathematical Discourse:</b> Mathematics discourse requires intentional planning to ensure all students feel comfortable to share, consider, build upon and critique the mathematical ideas under consideration. When student ideas serve as the basis for discussion, we position them as knowers and doers of mathematics by using equitable talk moves students and attending to the ways students talk about who is and isn't capable of mathematics we can disrupt the negative images and stereotypes around mathematics of marginalized cultures and languages. "A discourse-based mathematics classroom provides stronger access for every student — those who have an immediate answer or approach to share, those who have begun to formulate a mathematical approach to a task but have not fully developed their thoughts, and those who may not have an approach but can provide feedback to others." For example, when studying to solve real life and mathematical problems using numerical and algebraic expressions and equations, facilitating meaningful mathematical discourse is critical because these real life and mathematical problems tend to have multiple entry points for students in order to solve the problem. Students should be able to enter the problem at their level 35 6 and then take the task to a higher level through connections to previous learning or to additional strategies. Allowing students to discuss the mathematical strategy they used to solve the problem provides them a voice and an opportunity to share their thinking with the group in a way that is okay to be different.</li> </ul>



Vertical Alignment		
<i>Previous Learning</i>	<i>Current Learning</i>	<i>Future Learning</i>
<ul style="list-style-type: none"> <li>In 6th grade, students use variables to represent numbers and write expressions when solving a real-world or mathematical problem with equations or expressions. This connects directly to this cluster as students build upon this skill with multiple step problems and the inclusion of rational numbers.</li> </ul>	<ul style="list-style-type: none"> <li>In 7th grade, students will develop an understanding of operations with rational numbers when working with expressions and linear equations. They will use these skills later in 7th grade when applying these skills to scale drawings, geometric constructions, area, and volume.</li> </ul>	<ul style="list-style-type: none"> <li>In 8th grade students solve linear equations (including rational number coefficients) in one variable with one solution, infinitely many solutions, or no solutions. In 8th grade, learners analyze and solve pairs of simultaneous linear equations (in one and two variables).</li> </ul>
Suggested Instructional Strategies		
Pre-Teach		
<i>Level of Intensity</i>	<i>Essential Question</i>	<i>Examples</i>
Targeted	<i>What pre-teaching will prepare students to productively struggle with the mathematics for this cluster within your HQIM?</i>	For example, some learners may benefit from targeted pre-teaching that provides additional time for confusion to happen with new mathematical ideas when studying solving real life and mathematical problems using numerical and algebraic expressions and equations because this cluster focuses on solving two step equations/inequalities and the previous 6th grade cluster focused on one-step equations. Providing time for students to struggle and to determine how to apply their previous knowledge from one step-equations can help clear up misconceptions because students will have had time to develop their thought process instead of just going through steps.
Intensive	<i>What critical understandings will prepare students to access the mathematics for this cluster?</i>	<i>6.EE.B.7 This standard provides a foundation for work with solving real life and mathematical problems using numerical and algebraic expressions and equations because in this standard, students are expected to solve real world and mathematical problems in the form of <math>x + p = q</math> and <math>px = q</math>, which are one step equations with positive rational numbers. In the 7th grade cluster, students are introduced to two step equations &amp; inequalities with positive and negative rational numbers. If students have unfinished learning within this standard,</i>

*based on assessment data, consider ways to provide intensive pre-teaching support prior to the start of the unit to ensure students are ready to access grade level instruction and assignments.*

**Universal Support Framework**

A student should know/understand...	A student should be able to do...	<b>Potential Scaffolds</b>
<ul style="list-style-type: none"> <li>● Percents can be interpreted as both fractions and decimals.</li> <li>● How to check their work for reasonableness using estimation strategies.</li> <li>● How to choose between forms of a rational number to simplify calculations or communicate solutions meaningfully.</li> <li>● Connections between arithmetic solution processes that do not use variables and algebraic solution processes that use equations.</li> </ul>	<ul style="list-style-type: none"> <li>● Compute (add, subtract, multiply and divide) rational numbers in various forms.</li> <li>● Extend computations of rational numbers to real-world situations (e.g. discounts, commissions, perimeter, area, etc.).</li> <li>● Create and fluently solve equations of the forms <math>px + q = r</math> and <math>p(x + q) = r</math>.</li> <li>● Create, solve, and graph inequalities of the forms <math>px + q &gt; r</math>, <math>px + q &lt; r</math>, <math>px + q \geq r</math>, and <math>px + q \leq r</math>.</li> </ul>	<ul style="list-style-type: none"> <li>● Build on students' experience with the following skills:               <ul style="list-style-type: none"> <li>○ Use variables to represent numbers to represent numbers.</li> <li>○ Write expressions when solving real world mathematical problems.</li> <li>○ Solve multiple step problems including rational numbers.</li> </ul> </li> <li>● Cognitive Strategies               <ul style="list-style-type: none"> <li>○ Repeatedly model the strategies</li> <li>○ Monitor the students' use of the strategies</li> <li>○ Provide feedback to students</li> <li>○ Teach self-questioning and self-monitoring strategies</li> <li>○ Introduce multiple means of representation for mathematical ideas</li> </ul> </li> <li>● Encourage students to use alternative tools to better access the grade level content. Examples include:               <ul style="list-style-type: none"> <li>○ Graphic organizer with grade appropriate math symbols</li> <li>○ Colored pencils</li> <li>○ Algebra tiles</li> <li>○ Percent- Fraction-Decimal Reference Chart</li> </ul> </li> </ul>

**Re-Teach**

<b>Level of Intensity</b>	<b>Essential Question</b>	<b>Examples</b>
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Targeted	What formative assessment data (e.g., tasks, exit tickets, observations) will help identify content needing to be revisited during a unit?	Examine assessments for evidence of lingering misconceptions (see common misconceptions). If students exhibit one more of these misconceptions, consider addressing the misconception by re-engaging with content during a unit on solving real life and mathematical problems using numerical and algebraic expressions and equations by examining tasks from a different perspective through a short mini lesson because students often struggle with the concept of an inequality versus an equation, even though solving both is very similar. By looking at a task through the perspective of needing one answer versus a number set students may be able to deepen their understanding of solving an equation/inequality.
Intensive	What assessment data will help identify content needing to be revisited for intensive interventions?	Examine assessments for evidence of students still developing the underlying ideas. For example, some students may benefit from intensive extra time during and after a unit solving real life and mathematical problems using numerical and algebraic expressions and equations by addressing conceptual understanding because in this cluster students are solving two-step equations/ inequalities. Students might forget to keep the equation/inequality in balance when solving. Teachers can check this by having them use algebra tiles when solving equations/inequalities.
<b>Extension</b>		
<b><i>Essential Question</i></b>		<b><i>Examples</i></b>
What type of extension will offer additional challenges to 'broaden' your student's knowledge of the mathematics developed within your HQIM?		To extend students learning about ... For example, some learners may benefit from an extension such as the opportunity to explore links between various topics when studying solving real life and mathematical problems using numerical and algebraic expressions and equations because of the link between expressions, equations and inequalities. What is similar, different, what generalizations about each can be made? What do we know about the solutions for each?