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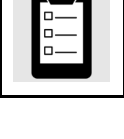n-grade-level standards, focusing on acceleration. The purpose of this tool is to help educators understand each of the grade level standards and how those standards connect to the students' overall preparation for college and career readiness.

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 **(only provided for clusters with Conceptual Understanding standards)**
- A multilayered system of supports (MLSS) and culturally and linguistically responsive instruction (CLR) guide

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Key		
	Priority Standard	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.
	Conceptual Understanding	Conceptual Understanding standards help students build a deep understanding of the **how** and **why** of mathematics.
	Application	Application standards help students identify the appropriate concepts and skills to tackle **novel real-world problems.**
	Procedural Skill and Fluency	Procedural standards help students develop **efficiency** and **accuracy** in computations.

Standards Breakdown

- Use place value understanding and properties of operations to perform multi-digit arithmetic.
    - 3.NBT.A.1
    - 3.NBT.A.2
    - 3.NBT.A.3

Grade	CCSS Domain	CCSS Cluster
3	**Numbers and Operations in Base Ten**	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**

📋 Cluster Standard: 3.NBT.A.1

Standard	Standards for Mathematical Practice
Use place value understanding to round whole numbers to the nearest 10 or 100.	● **SMP 6:** Attend to precision.

Clarification Statement	Students Who Demonstrate Understanding Can...
● The expectation is that students have a deep understanding of place value and number sense and can explain and reason about the answers they get when they round. ● Students build on work in previous grades regarding strategies based on place value, the properties of operations, and relating addition to subtraction.	● Identifying the place value of digits in the ones, tens, hundred, and thousands place. ● Round up a two-digit number in the tens place by looking at the place value of the ones. ● Round up a three-digit number in the hundreds place by looking at the place value of the tens place. ● Explain why and how they rounded with accuracy. ● Demonstrate their understanding through visuals that correlate to place value understanding to round whole numbers

DOK	Blooms
1-2	Apply

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Grade	CCSS Domain	CCSS Cluster
3	**Numbers and Operations in Base Ten**	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**

📋 Cluster Standard: 3.NBT.A.2

Standard	Standards for Mathematical Practice
Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	• **SMP 4:** Model with mathematics. • **SMP 6:** Attend to precision. • **SMP 7:** Look for and make use of structure.

Clarification Statement	Students Who Demonstrate Understanding Can...
• Students continue adding and subtracting within 1,000, extending their understanding of place value by composing and decomposing tens and hundreds. • Students explain their thinking and show their work and verify that their answer is reasonable. Problems should include both vertical and horizontal forms, including opportunities for students to apply the commutative and associative properties.	• Demonstrate their understanding by fluently using place value to add and subtract. • Add and subtract whole numbers up to and including 1,000. • Use estimation strategies to assess reasonableness of answers. • Model and explain how the relationship between addition and subtraction can be applied to solve addition and subtraction problems. • Use expanded form to decompose numbers and then find sums and differences. • Utilize visuals that represent their understanding of place value to round whole numbers to the nearest 10 or 100.

DOK	Blooms
1-2	Understand, Apply

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Grade	CCSS Domain	CCSS Cluster
3	**Numbers and Operations in Base Ten**	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**

Cluster Standard: 3.NBT.A.3

Standard	Standards for Mathematical Practice
Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	**SMP 2:** Reason abstractly and quantitatively. **SMP 4:** Model with mathematics. **SMP 6:** Attend to precision. **SMP 7:** Look for and make use of structure.

Clarification Statement	Students Who Demonstrate Understanding Can...
- Estimation strategies include identifying when estimation is appropriate, determining the level of accuracy needed, selecting the appropriate method of estimation, and verifying solutions or determining the reasonableness of situations. Estimation strategies include, but are not limited to: front-end estimation with adjusting (using the highest place value and estimating from the front end, making adjustments to the estimate by taking into account the remaining amounts), rounding and adjusting (students round down or round up and then adjust their estimate depending on how much the rounding affected the original values), using friendly or compatible numbers such as factors - Students extend on their work in multiplication by applying understanding of place value. - The special role of 10 in the base-ten system is important in understanding multiplication of one-digit numbers with multiples of 10. - Using the properties of operations (commutative, associative, and distributive) and place value,	- Using strategies based on place value knowledge and the utilization of the properties of operations. - Use concrete and pictorial models, based on place value and the properties of operations to find the product of a one-digit whole number by a multiple of 10 in the range 10–90.

students are able to explain their reasoning.	
DOK	**Blooms**
1-2	Understand, Apply

Common Misconceptions

- Students may misunderstand "rounding down" and actually lower the value of the digit in the designated place.
- Students may misunderstand "rounding up" and change the digit in the designated place while leaving digits in smaller places as they are.
- Students who learn to add and subtract procedurally without a deep understanding of place value and regrouping will struggle to determine whether their answers are reasonable.

- Students may not understand that multiplying 3 X 40 means you have 3 groups of 4 tens and that is 12 tens or 120 (rather than multiply 4 X 3 and "add a zero at the end").

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ASSESSMENT GUIDE

- Use place value understanding and properties of operations to perform multi-digit arithmetic.

Grade	CCSS Domain	CCSS Strand
3	**Numbers and Operations in Base Ten**	**Use place value understanding and properties of operations to perform multi-digit arithmetic**

	Sample Task #1 (Constructed Response)
	Jolene brings an apple and an orange with her to school. The weight of both pieces of fruit together is 417 grams. The apple weighs 223 grams. What is the weight of Jolene's orange?
	Sample Task #2 (Multiple Choice)
	The city zoo orders 472 pounds of meat to feed the animals. What is 472 rounded to the nearest ten? A. 400 B. 470 C. 480 D. 500

MLSS AND CLR GUIDE

- Use place value understanding and properties of operations to perform multi-digit arithmetic.

CCSS Domain	CCSS Cluster
Numbers and Operations in Base Ten	**Use place value understanding and properties of operations to perform multi-digit arithmetic**

Culturally and Linguistically Responsive Instruction

Relevance to Families and Communities	During a unit focused on rounding, adding, and subtraction 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 how families determine how much and what type of cloth to make various textiles for their family and the community.

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Cross-Curricular Connections	Language Arts: Expository writing to describe scientific or statistical data. Social Studies: Understanding statistical data in current events

Validate/Affirm/Build/ Bridge	● *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?* ● *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?*	● Goal Setting: Setting challenging but attainable goals with students can communicate the belief and expectation that all students can engage with interesting and rigorous mathematical content and achieve in mathematics. Unfortunately, the reverse is also true, when students encounter low expectations through their interactions with adults and the media, they may see little reason to persist in mathematics, which can create a vicious cycle of low expectations and low achievement. For example, when studying using place value understanding and 37 7 properties of operations to perform multi-digit arithmetic goal setting is critical because it allows students the opportunity to think about and evaluate where they are at in their learning. It helps students focus on where they need to go and helps them develop a plan to get where they need to be.

Planning for Multi-Layered System of Supports

Vertical Alignment

Previous Learning	Current Learning	Future Learning
● In 2nd grade, learners used place value understanding and properties of operations to add and subtract. ● Connect to understanding that the three digits of a three-digit	● Connect to apply properties of operations as strategies to multiply and divide. **(3.OA.5)** ● Connect to fluently add and subtract within 1000 using strategies and algorithms based on	● Connect to use place value understanding and properties of operations to perform multi-digit arithmetic. Learners use place value understanding to round multi-digit whole numbers to any

number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases. **(2.NBT.1)**

- Connect to numbers within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method**. (2.NBT.7)**
- Connect to why addition and subtraction strategies work, using place value and the properties of operations. **(2.NBT.9)**
- Connect to mentally added 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. **(2.NBT.8)**

place value, properties of operations, and/or the relationship between addition and subtraction. **(3.NBT.2)**
- Connect the area to the operations of multiplication and addition. **(3.MD.7)**
- Connect to multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations. **(3.NBT.3)**

place. **(4.NBT.3)**
- Connect to fluently add and subtract multi-digit whole numbers using the standard algorithm. **(4.NBT.4)**
- Connect to multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **(4.NBT.5)**
- Connect to find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **(4.NBT.6)**

Suggested Instructional Strategies
Pre-Teach

Level of Intensity	*Essential Question*	*Examples*
Targeted	*What pre-teaching will prepare students to productively struggle with the mathematics for this cluster within your HQIM?*	For example, some learners may benefit from targeted pre-teaching that rehearses prior learning when studying using place value understanding and properties of operations to perform multi-digit arithmetic because understanding place value is the foundation of understanding numbers. Through understanding place value students will be able to easily manipulate numbers to help with mental math strategies. Understanding of place value also helps students to understand addition and subtraction.

Intensive	*What critical understandings will prepare students to access the mathematics for this cluster?*	2.NBT.A.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. This standard provides a foundation for work using place value understanding and properties of operations to perform multi-digit arithmetic because it helps students understand the process of regrouping and the reasoning of why we regroup when adding/subtracting. It also provides the basis of the place value system so students can expand their understanding to larger 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.
Re-Teach		
Level of Intensity	*Essential Question*	*Examples*
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 place value understanding and properties of operations to perform multi-digit arithmetic by clarifying mathematical ideas and/or concepts through a short mini-lesson because it will provide students the opportunity to rethink about the value of numbers and digits in numbers. Understanding the value of digits and numbers provides students the foundation to understand addition and subtraction of numbers.
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 place value understanding and properties of operations to perform multi-digit arithmetic by clarifying mathematical ideas and/or concepts by addressing conceptual understanding because students need to understand and internalize the value of numbers. The more students understand the value of numbers the more they will be able to manipulate numbers and begin to understand addition and subtraction of numbers.
Extension		

Essential Question	*Examples*
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 place value understanding and properties of operations to perform multi-digit arithmetic because when students are allowed to apply their understanding to real world tasks, they develop a deeper understanding of the concept. Through applying their understanding of place value as well as adding and subtracting numbers to a real world, multi-disciplinary tasks students must take their possibly isolated understanding of a concept and integrate and apply it to their own interests and lives.