

K.CC: COUNTING & CARDINALITY

Cluster Statement: C: Compare numbers.

Major Cluster (Students should spend the large majority of their time (65-85%) on the major work of the grade/course. Supporting work and, where appropriate, additional work should be connected to and engage students in the major work of the grade.)

<p>Standard Text</p> <p>K.CC.C.6: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.</p>	<p>Standard for Mathematical Practices</p> <p>SMP 6: Students can attend to precision by using clear vocabulary to describe the relative difference between sizes of sets.</p> <p>SMP 7: Students can look for and make use of structure by using one-to-one correspondence when comparing the groups to see which group has more, less, or if they are the same.</p>	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Tell which has more by matching or counting the number of objects in both groups. • Tell which has less by matching or counting the number of objects in both groups. • Tell when groups are equal by matching or counting. • Create equal groups in different arrangements.
		<p>Depth Of Knowledge: 2</p>
		<p>Bloom's Taxonomy: Apply and Analyze</p>
<p>Standard Text</p> <p>K.CC.C.7: Compare two numbers between 1 and 10 presented as written numerals.</p>	<p>Standard for Mathematical Practices</p> <p>SMP 2: Students can reason abstractly and quantitatively by connecting the comparison of physical objects to the number names in describing the comparison.</p> <p>SMP 6: Students can attend to precision by labeling a set of concrete materials with the appropriate numeral.</p>	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Read numerals to 10. • Tell the values of numbers to 10. • Determine if a set is greater or less than another set (up to 10). • Compare two numerals between 1 and 10 and say which has a greater value.

		<p>Depth Of Knowledge: 1-2</p>
<p>Previous Learning Connections</p> <ul style="list-style-type: none"> • Connect to recognizing and naming numerals 1 to 5 • Connect to comparing two groups (containing up to 5 objects each) and describing them using comparative words, such as, less, fewer, or equal • Connect to looking at a group of up to 4 objects and quickly seeing and saying the number of objects 	<p>Current Learning Connections</p> <ul style="list-style-type: none"> • Connect to continuing in the Counting and Cardinality domain to use counting to tell the number of objects. (K.CC.4-5) • Connect to classifying objects and counting the number of objects in each category. (K.MD.3) 	<p>Bloom's Taxonomy: Remember, Apply and Analyze</p> <p>Future Learning Connections</p> <ul style="list-style-type: none"> • Connect to comparing two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$ and $<$. (1.NBT.3) • Connect to organizing, representing, and interpreting data with up to three categories; asking and answering questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. (1.MD.4)
<p>Clarification Statement: K.CC.C.6: Students first learn to match the objects in the two groups to see if there are any extra and then to count the objects in each group and use their knowledge of the count sequence to decide which number is greater than the other (the number farther along in the count sequence).</p>		
<p>Common Misconceptions</p> <ul style="list-style-type: none"> • Lack of one-to-one correspondence • Believing that the arrangement of a set of objects affects the total count • Believing that a longer line of objects automatically contains more objects • Struggling with the language of comparison 		
<p>Multi-Layered System of Supports (MLSS)/Suggested Instructional Strategies</p> <p>Pre-Teach</p> <p>Pre-teach (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 introduces new representations (e.g., number lines) when studying comparing numbers because experience and exposure to numbers and the concepts required for a comparison may not be familiar and may require tools and new vocabulary for students to access the content required to learn and demonstrate knowledge of the standard.</p> <p>Pre-teach (intensive) What critical understandings will prepare students to access the mathematics for this cluster? New Mexico Early Learning Guidelines, Essential Indicator 9.1, 9.3 a-b, and 12.1 and K.CC.A.12: This standard provides a foundation for work with comparing numbers because students must have a foundation in numbers to engage in comparison taxonomy. If students have unfinished learning within this standard, based on assessment data, consider ways to provide intensive</p>		

pre-teaching support prior to the start of the unit to ensure students are ready to access grade level instruction and assignments.

Core Instruction

Access:

Physical Action: How will the learning for students provide a variety of methods for navigation to support access?

For example, learners engaging with comparing numbers benefit when learning experiences ensure information is accessible to learners through a variety of methods for navigation, such as varying methods for response and navigation by providing alternatives to written response and allowing physically responding or indicating selections; physically interacting with materials by hand, voice, single switch, joystick, keyboard, or adapted keyboard because a variety of physical actions engage learners and support active understanding of comparison.

Build:

Effort and Persistence: How will the learning for students provide options for sustaining effort and persistence?

For example, learners engaging with comparing numbers benefit when learning experiences attend to students attention and affect to support sustained effort and concentration such as creating cooperative learning groups with clear goals, roles, and responsibilities because students can share knowledge and understanding and learn from peers as well as receive peer scaffolding and support to demonstrate the skill.

Language and Symbols: How will the learning for students provide alternative representations to ensure accessibility, clarity and comprehensibility for all learners? (e.g., a graph illustrating the relationship between two variables may be informative to one learner and inaccessible or puzzling to another; picture or image may carry very different meanings for learners from differing cultural or familial backgrounds)

For example, learners engaging with comparing numbers benefit when learning experiences attend to the linguistic and nonlinguistic representations of mathematics to ensure clarity can comprehensibility for all learners such as presenting key concepts in one form of symbolic representation (e.g., math equation) with an alternative form (e.g., an illustration, diagram, table, photograph, animation, physical or virtual manipulative) because not all learners will be able to grasp the concept of comparison without support and vocabulary to identify the differences and similarities in numbers.

Expression and Communication: How will the learning provide multiple modalities for students to easily express knowledge, ideas, and concepts in the learning environment?

For example, learners engaging with comparing numbers benefit when learning experiences attend to the multiple ways students can express knowledge, ideas, and concepts such as providing different approaches to motivate, guide, feedback or inform students of progress towards fluency because comparing numbers can be communicated in a variety of ways and varying answer types will sustain engagement in practicing this skill and developing a depth of understanding in application through routine practice and regular application.

Internalize:

Self-Regulation: How will the design of the learning strategically support students to effectively cope and engage with the environment?

For example, learners engaging with comparing numbers benefit when learning experiences set personal goals that increase ownership of learning goals and support healthy responses and interactions (e.g., learning from mistakes), such as increasing the length of on-task orientation in the face of distractions because developing the skills around comparing

numbers requires repeated application and practice requiring students to engage for sustained periods of time and repeatedly working with this skill/concept.

Re-teach

Re-teach (targeted)

What formative assessment data (e.g., tasks, exit tickets, observations) will help identify content needing to be revisiting 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 For example, students may benefit from re-engaging with content during a unit on comparing numbers by clarifying mathematical ideas and/or concepts through a short mini-lesson because differences in language acquisition, exposure to vocabulary and higher level taxonomy may not be areas of strength or familiarity for young students.

Re-teach (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 comparing numbers by addressing conceptual understanding because comparison requires a level of understanding of numbers that some students may need more time to develop and may need support to begin to understand.

Extension

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, for example, some learners may benefit from an extension such as in-depth, self-directed exploration of self-selected topics when studying comparing numbers because students come to Kindergarten with varying levels of experience and understanding of numbers and should be encouraged to explore numbers of higher value or develop deeper comparisons of numbers based on their developmental levels.

Culturally and Linguistically Responsive Instruction:

Validate/Affirm: 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?

Build/Bridge: 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?

Building Procedural Fluency from Conceptual Understanding: Instruction should build from conceptual understanding to allow students opportunities to make meaning of mathematics before focusing on procedures. When new learning begins with procedures it privileges those with strong prior familiarity with school mathematics procedures for solving problems and does not allow learning to build for more methods for solving tasks that occur outside of school mathematics. For example, when studying comparing numbers the types of mathematical tasks are critical because students may benefit from a routine and ritual practice and process to develop their comparison skills and build fluency to compare a variety of numbers.

Standards Aligned Instructionally Embedded Formative Assessment Resources:

Source: <http://tasks.illustrativemathematics.org/content-standards/K/CC/C/7/tasks/697>

The iteration of greater than, less than, and equal to with a specific "target number" will help strengthen the concept. It is important that all the numerals used in the game are written down both to aid in comparison and to meet the standard.

Relevance to families and communities:

During a unit focused on comparing numbers, 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, learning about relevance of numbers and the value associated with numbers in the culture of the student/family may provide relevance for the student in learning this skill.

Cross-Curricular Connections:

Social Studies: In Kindergarten, the New Mexico Social Studies Standards state students should "identify classroom population". Consider providing a connection for students to count the classroom population in ways that change (such as number of students present and number of students absent each day) and then compare those numbers.

Language Arts: Literature can offer connections about measurement such as: *More or Less?* by Stuart J. Murphy and *Albert Keeps Score* by Daphne Skinner.