NEW MEXICO
Public Education Department

New Mexico Instructional S
1st Grade Geometry G

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 **(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

- Reason with shapes and their attributes.
  - 1.G.A.1
  - 1.G.A.2
  - 1.G.A.3

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Grade	CCSS Domain	CCSS Cluster
1	Geometry	Reason with shapes and their attributes.

Cluster Standard: 1.G.A.1

Standard	Standards for Mathematical Practice
Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.	• **SMP 6:** Attend to precision. • **SMP 7:** Look for and make use of structure.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• [Students] differentiate between **geometrically defining attributes** (e.g., "**hexagons** have six **straight sides**") and **non defining attributes** (e.g., color, overall **size**, or **orientation**). For example, they might say of this **shape**, "This must go with the **squares**, because all four sides are the **same**, and these are **square corners**. It doesn't matter which way it's turned" (MP3, MP7). They explain why the variants shown earlier (p. 6) are members of familiar shape **categories** and why the difficult distractors are not, and they draw examples and nonexamples of the shape categories (MP7, MP8).	• Explain the difference between defining attributes (e.g., sides, angles, faces) and non-defining attributes (e.g., color, orientations, overall size). • Identify two-dimensional shapes including rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles. • Identify three-dimensional shapes cubes, right rectangular prisms, right circular cones, and right circular cylinders. • Construct and draw a shape when given defining attributes.
DOK	**Blooms**
1-2	Remember, Apply, and Analyze

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Grade	CCSS Domain	CCSS Cluster
1	Geometry	Reason with shapes and their attributes.

Cluster Standard: 1.G.A.2

Standard	Standards for Mathematical Practice
Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	• **SMP 1:** Make sense of problems and persevere in solving them. • **SMP 5:** Use appropriate tools strategically.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
From the early beginnings of informally matching shapes and **solving** simple shape puzzles, students learn to intentionally **compose** and **decompose plane** and **solid figures** (e.g., putting two **congruent isosceles triangles** together with the explicit purpose of making a **rhombus**), building understanding of **part-whole relationships** as well as the **properties** of the original and **composite shapes**. In this way, they learn to perceive a combination of shapes as a single new shape (e.g., recognizing that two isosceles triangles can be combined to make a rhombus, and simultaneously seeing the rhombus and the two triangles).	• Create new shapes using two-dimensional and/or three-dimensional shapes. • Identify the name of the composite shape as well as the names of each shape that forms it. • Solve shape puzzles, create shape designs, and maintain a shape as a unit.
DOK	**Blooms**
2-3	Apply, Analyze, and Create

Grade	CCSS Domain	CCSS Cluster
1	Geometry	Reason with shapes and their attributes.

Cluster Standard: 1.G.A.3

Standard	Standards for Mathematical Practice
Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of,* and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	• **SMP 6:** Attend to precision. • **SMP 7:** Look for and make use of structure.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
	• Partition (divide) a circle and rectangle into two and four equal parts. • Describe the equal parts of a circle and rectangle with words (halves, fourths, and quarters). • Describe the whole by the number of equal parts (e.g., two halves make a whole). • Explain the more equal parts of a circle or rectangle, the smaller the parts.
DOK	**Blooms**
1-2	Understand, Apply, and Analyze

Common Misconceptions

• Students may find the terms closed and unclosed (open) confusing. • Students may have difficulty visualizing or filling in shape puzzles.	• Students may believe the size of the shares is directly related to the number of shares. For example, since there are four fourths in a whole and only two halves in a whole, fourths must be bigger.

ASSESSMENT GUIDE

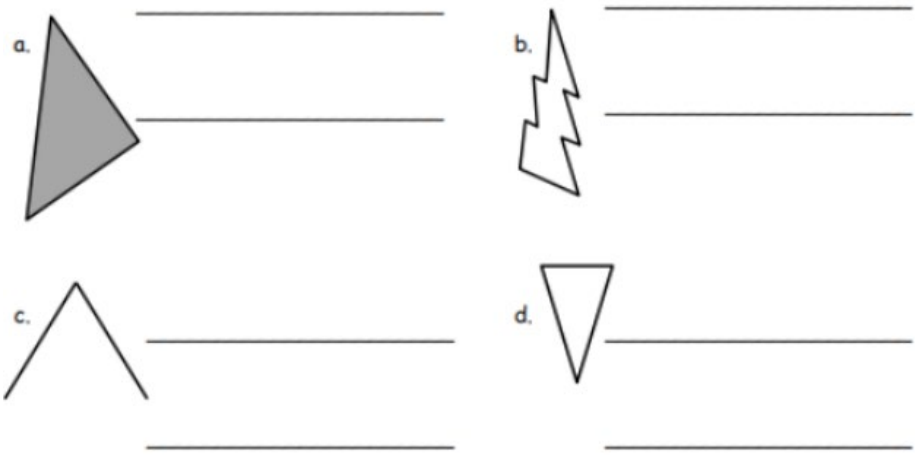
- Reason with shapes and their attributes.

Grade	*CCSS Domain*	*CCSS Strand*
1	Geometry	Reason with shapes and their attributes.

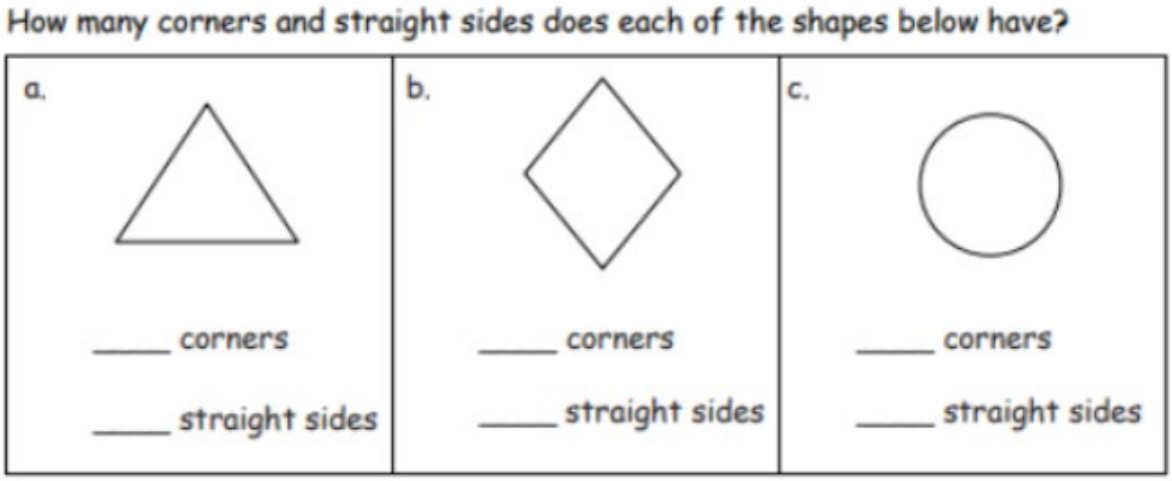
Sample Task #1 (Constructed Response)

Is the shape a triangle?

If it is, write YES on the line. If it is not, explain why it is not a triangle on the line.



Sample Task #2 (Multiple Choice)



MLSS AND CLR GUIDE

- Reason with shapes and their attributes.

CCSS Domain	*CCSS Cluster*
Geometry	Reason with shapes and their attributes

Culturally and Linguistically Responsive Instruction

Relevance to Families and Communities	During a unit focused on reasoning about shapes and their attributes, 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, identify 2D and 3D shapes found at home, in the community, and in nature. Identify the shapes of culturally significant places or even items in the world, what shapes make up that structure/item or that you can derive from the structure. Ex. The Pentagon: what shape is it, and what shapes can you make from it? Pyramids: what shapes are they; what shapes make up the pyramids? How are these different from the Temples in South America? Making connections between the world outside of school and the math classroom. Traffic signs such as a stop sign. Shapes in nature, including a turtle shell and honeycomb.
Cross-Curricular Connections	Social Studies: In first grade the New Mexico Social Studies Standards state students should “identify and compare celebrations and events from the United States, Mexico, and Canada”. Consider providing a connection for students to create images to represent

	different celebrations and events using only shapes that combine to form the larger image. Language Arts: Literature can offer connections to help students begin to understand part-whole relationships such as: *Give Me Half* by Stuart J. Murphy and *Picture Pie* by Ed Emberley.	
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?*	• Using and Connecting Mathematical Representations: The standard for mathematical practice, use appropriate tools strategically, provides a strong foundation to validate and bridge for students. Mathematical representations are mathematical tools. The linguistic and cultural experiences of students provide different and varied types of representations for solving mathematical problems. By explicitly encouraging students to use multiple mathematical representations students can draw on their "mathematical, social, and cultural competence". By valuing these representations and discussing them we can connect student representations to the representations of school mathematics and build a bridge for students to position them as competent and capable mathematicians. For example, when studying reasoning about shapes and their attributes the use of mathematical representations within the classroom is critical because promoting collaborative teaching and learning with student-to-student and student-to-teacher dialogues to encourage students' participation. For example, a teacher might plan "turn and talks" during a math lesson to help students discuss their understanding of the content using appropriate terminology.

Planning for Multilayered System of Supports

Vertical Alignment

Previous Learning	*Current Learning*	*Future Learning*
• Connect to naming regular shapes (squares, circles, rectangles, triangles, hexagons, cubes, cones, cylinders and spheres) and	• Connect to telling and writing time to the hour and to the half-hour and thinking about equality, including the idea of equal shares. **(1. MD.3)**	• Connect to working with shapes, drawing and analyzing shapes with a given number of angles and faces and identifying triangles,

analyzing and comparing these shapes using formal and informal language. **(K.G.1-3)** ● Connect to composing simple shapes to form larger shapes. **(K.G.6)**		quadrilaterals, hexagons and cubes. **(2.G.1)** ● Connect to partitioning shapes into equal shares, adding in thirds and deepening understanding of part and whole relationship by stating that a whole can be made up of three thirds, four fourths, etc. and that the equal shares of identical whole parts do not have to be the same shape. **(2.G.2-3)**

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 new mathematical language when studying reasoning about shapes and their attributes because students are being introduced to new language that is connected to shapes, such as partition, fourths, halves, and quarters. Rehearsing the new language prior to teaching the concepts will allow students to have the opportunity to be exposed to it prior to it being taught to them.
Intensive	*What critical understandings will prepare students to access the mathematics for this cluster?*	K.G.B.4: This standard provides a foundation for work with reasoning about shapes and their attributes because students have been exposed to analyzing and comparing shapes according to their attributes. 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 reasoning about shapes and their attributes by revisiting student thinking through a short mini-lesson because students might not have a strong understanding of the various types of attributes the different shapes have. Also, students might need to be exposed to partitioning shapes into fourths, halves and quarters as this is a new concept for 1st graders.
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 reasoning about shapes and their attributes by confronting student misconceptions because students might be confused on the various types of attributes of the shapes. Also, students may have misconceptions on how to partition shapes into halves, fourths and quarters depending on the wording that is used.

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 reasoning about shapes and their attributes because students can get a deeper understanding of shapes and partitioning shapes when working with an open-ended task.