NEW MEXICO
Public Education Department

New Mexico Instructional Scope

3rd Grade Geometry Guide

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

NEW MEXICO
Public Education Department

New Mexico Instructional Scope

3rd Grade Geometry Guide

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
  - 3.G.A.1
  - 3.G.A.2

NEW MEXICO
Public Education Department

New Mexico Instructional Scope
3rd Grade Geometry Guide

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

Cluster Standard: 3.G.A.1

Standard	**Standards for Mathematical Practice**
Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories	• **SMP 3:** Construct viable arguments and critique the reasoning of others. • **SMP 6**: Attend to precision. • **SMP7:** Look for and make use of structure.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• Students should categorize shapes by attribute. They can name rhombuses, squares, and rectangles as types of quadrilaterals. They can also draw an example of a quadrilateral that is not a rhombus, rectangle, or square.	• Investigate characteristics of and compose triangles and quadrilaterals. • Decompose quadrilaterals. • Recognize and draw both examples and non-examples of a variety of quadrilaterals including rhombuses, rectangles, squares, parallelograms, and trapezoids. • Communicate their reasoning by explaining their thinking and sharing their solutions • Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals).
DOK	**Blooms**
2	Understand, Apply

NEW MEXICO
Public Education Department

New Mexico Instructional Scope
3rd Grade Geometry Guide

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

Cluster Standard: 3.G.A.2

Standard	Standards for Mathematical Practice
Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as ¼ of the area of the shape.	• **SMP 4**: Model with mathematics. • **SMP 6:** Attend to precision.
Clarification Statement	**Students Who Demonstrate Understanding Can...**
• Students should break shapes into equal parts to illustrate fractions. They can tell you that one part of that shape is a part of a whole. For example: A student may have a circle. They will draw lines in that circle to break it into 3 equal parts. The student can tell you that one of the four pieces is 1/3 of the circle.	• Partition shapes into equal parts understanding that the parts have equal areas. • Write a unit-fraction or a non-unit fraction for partitioned shapes. • Know that shapes can be partitioned into equal areas. • Describe the area of each part as a fractional part of the whole. • Relate fractions to geometry by expressing the area of part of a shape as a unit fraction of the whole.
DOK	**Blooms**
1-2	Remember, Understand

Common Misconceptions

• Students may have difficulty recognizing the subtle differences between shapes such as the size of angle where two sides meet. • Students might mistakenly mislabel types of quadrilaterals due to vocabulary difficulty. • Students may be able to tell that squares and	• Students might be confused with the concept that equal shares of identical wholes may not have the same shape. • Students may also not understand an area model represents one out of two or three or four fractional parts without the understanding the

rectangles are related shapes but they may mistakenly label a rectangle as a kind of square rather than the other way around.	parts are equal shares.

ASSESSMENT GUIDE

- Reason with shapes and their attributes

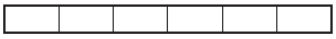
Grade	*CCSS Domain*	*CCSS Strand*
3	**Geometry**	**Reason with shapes and their attributes**

Sample Task #1 (Constructed Response)

Name at least two attributes that a trapezoid, a square, and a parallelogram all have in common. Draw a diagram to support your ideas.

Sample Task #2 (Multiple Choice)

This rectangle is divided into equal parts.



What fraction of the whole rectangle is each part?

Ⓐ $\frac{1}{6}$

Ⓑ $\frac{1}{5}$

Ⓒ $\frac{5}{1}$

Ⓓ $\frac{6}{1}$

MLSS AND CLR GUIDE

- Reason with shapes and their attributes

CCSS Domain	*CCSS Cluster*

NEW MEXICO
Public Education Department

New Mexico Instructional Scope
3rd Grade Geometry Guide

Geometry	Reason with shapes and their attributes

Culturally and Linguistically Responsive Instruction

Relevance to Families and Communities	During a unit focused on reasoning with 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, for example, studying the architecture of different cultures to investigate how shapes and their attributes are utilized in different ways.	
Cross-Curricular Connections	Language Arts: Read Keeping Quilt by Patricia Polacco. Explore geometry of quilt designs. Students create a quilt design using plane shapes. Art: Architecture/design by finding shapes in buildings.	
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?*	• Task: When planning with your HQIM, consider how to modify tasks to represent the prior experiences, culture, language and interests of your students to "portray mathematics as useful and important in students' lives and promote students' lived experiences as important in mathematics class." Tasks can also be designed to "promote social justice [to] engage students in using mathematics to understand and eradicate social inequities (Gutstein 2006)." For example, when studying reasoning with shapes and their attributes the types of mathematical tasks are critical because there are a great many concrete ways in which this area of study can be applied to students' lives and experiences therefore there is a rich groundwork on which to build understanding of the content through tasks that are aimed at student experiences.

Planning for Multi-Layered System of Supports

NEW MEXICO
Public Education Department

New Mexico Instructional Scope

3rd Grade Geometry Guide

Vertical Alignment		
Previous Learning	***Current Learning***	***Future Learning***
• Connect to the many experiences with specific attributes of shapes such as triangles, hexagons and cubes. They have learned the difference between defining attributes and non-defining attributes. • Connect to drawing shapes having specified attributes, such as a given number of angles or a given number of equal faces. They identified triangles, quadrilaterals, pentagons, hexagons, and cubes**. (2.G.1)**	• Connect to understanding a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a part of size 1/b. **(3.NF.1)** • Connect to understanding a fraction as a number on the number line; represent fractions on a number line diagram. **(3.NF.2)** • Connect the partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape. **(3.G.2)**	• Connect to understanding angles of geometric shapes and angle measurements. • Connect to drawing points, lines, line segments, rays, angles (right, obtuse, acute) and perpendicular and parallel lines in 2-D figures. **(4.G.1)** • Connect to angles as geometric shapes which are formed when two rays share a common endpoint and understand concepts of angle measurement. **(4.MD.5)**

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 uses images/resources (especially those being used the first time when studying reasoning with shapes and their attributes because this will engage visual learners and help students to relate vocabulary of shapes and their attributes to concrete examples.
Intensive	*What critical understandings will prepare students to access the mathematics for this cluster?*	2.G.A.1: This standard provides a foundation for work with reasoning with shapes and their attributes because this standard asks students to begin reasoning with shapes as well as laying the groundwork for key vocabulary that will be repeated in the current work of the grade. 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 with shapes and their attributes by clarifying mathematical ideas and/or concepts through a short mini-lesson because this standard is heavy with mathematical vocabulary and allowing students time to clarify their understanding of these ideas will be key in helping them to meet the standard.
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 with shapes and their attributes by offering opportunities to understand and explore different strategies because this will allow students to find methods for reasoning with shapes that fit their mental schema as individual learners.
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 the opportunity to understand concepts more quickly and explore them in greater depth than other students when studying reasoning with shapes and their attributes because this allows them to explore higher level applications of reasoning with shapes and to move at a pace that is more appropriate for them rather than working with the rest of the class and then receiving “extra” work.