




MA Mathematics Framework Progression Chart

Counting & Cardinality	Counting & Cardinality						Instructions:  Domains in this Progression Chart are organized by grade level and aligned with the Numeracy Assessment Protocol.  Click on a domain to view grade-level clusters.  Click on # to view entire grade-level domains and cluster descriptions.				
Operations & Algebraic Thinking	Operations & Algebraic Thinking	Operations & Algebraic Thinking	Operations & Algebraic Thinking	Operations & Algebraic Thinking	Operations & Algebraic Thinking	Operations & Algebraic Thinking					
	Number & Operations in Base Ten	Number & Operations in Base Ten	Number & Operations in Base Ten	Number & Operations in Base Ten	Number & Operations in Base Ten	Number & Operations in Base Ten					
				Number & Operations - Fractions	Number & Operations - Fractions	Number & Operations - Fractions				Ratios & Proportional Relationships	Ratios & Proportional Relationships
							The Number System	The Number System	The Number System		
Measurement & Data	Measurement & Data	Measurement & Data	Measurement & Data	Measurement & Data	Measurement & Data	Measurement & Data	Expressions & Equations	Expressions & Equations	Expressions & Equations		
									Functions		
Geometry	Geometry	Geometry	Geometry	Geometry	Geometry	Geometry	Geometry	Geometry	Geometry		
							Statistics & Probability	Statistics & Probability	Statistics & Probability		

PK

Pre-Kindergarten

Key
■ = Domain
■ = Cluster

Counting and Cardinality

- A. Know number names and the counting sequence.
- B. Count to tell the number of objects.
- C. Compare numbers.

Operations and Algebraic Thinking

- A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Measurement and Data

- A. Describe and compare measurable attributes.
- B. Classify objects and count the number of objects in each category.
- C. Work with money.

Geometry

- A. Identify and describe shapes (squares, circles, triangles, rectangles).
- B. Analyze, compare, create, and compose shapes.

K

Kindergarten

Counting and Cardinality

- A. Know number names and the counting sequence.
- B. Count to tell the number of objects.
- C. Compare numbers.

Operations and Algebraic Thinking

- A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Number and Operations in Base Ten

- A. Work with numbers 11–19 to gain foundations for place value.

Measurement and Data

- A. Describe and compare measurable attributes.
- B. Classify objects and count the number of objects in each category.

Geometry

- A. Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
- B. Analyze, compare, create, and compose shapes.

1

Grade 1

Operations and Algebraic Thinking

- A. Represent and solve problems involving addition and subtraction.
- B. Understand and apply properties of operations and the relationship between addition and subtraction.
- C. Add and subtract within 20.
- D. Work with addition and subtraction equations.

Number and Operations in Base Ten

- A. Extend the counting sequence.
- B. Understand place value.
- C. Use place value understanding and properties of operations to add and subtract.

Key

■ = Domain

■ = Cluster

Measurement and Data

- A. Measure lengths indirectly and by iterating length units.
- B. Tell and write time.
- C. Represent and interpret data.
- D. Work with money.

Geometry

- A. Reason with shapes and their attributes.

2

Grade 2

Operations and Algebraic Thinking

- A. Represent and solve problems involving addition and subtraction.
- B. Add and subtract within 20.
- C. Work with equal groups of objects to gain foundations for multiplication.

Number and Operations in Base Ten

- A. Understand place value.
- B. Use place value understanding and properties of operations to add and subtract.

Measurement and Data

- A. Measure lengths indirectly and by iterating length units.
- B. Relate addition and subtraction to length.
- C. Work with time and money.
- D. Represent and interpret data.

Geometry

- A. Reason with shapes and their attributes.

3

Grade 3

Operations and Algebraic Thinking

- A. Represent and solve problems involving multiplication and division.
- B. Understand properties of multiplication and the relationship between multiplication and division.
- C. Multiply and divide within 100.
- D. Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Number and Operations in Base Ten

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

Number and Operations—Fractions

- A. Develop understanding of fractions as numbers.

Measurement and Data

- A. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- B. Represent and interpret data.

- C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- D. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Key

■ = Domain

■ = Cluster

Geometry

- A. Reason with shapes and their attributes.

4**Grade 4****Operations and Algebraic Thinking**

- A. Use the four operations with whole numbers to solve problems.
- B. Gain familiarity with factors and multiples.
- C. Generate and analyze patterns.

Number and Operations in Base Ten

- A. Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000.
- B. Use place value understanding and properties of operations to perform multi-digit arithmetic on whole numbers less than or equal to 1,000,000.

Number and Operations—Fractions

- A. Extend understanding of fraction equivalence and ordering for fractions ordering for fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.
- B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers for fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.
- C. Understand decimal notation for fractions, and compare decimal fractions.

Measurement and Data

- A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- B. Represent and interpret data.
- C. Geometric measurement: Understand concepts of angle and measure angles.

Geometry

- A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

5**Grade 5****Operations and Algebraic Thinking**

- A. Write and interpret numerical expressions.
- B. Analyze patterns and relationships.

Number and Operations in Base Ten

- A. Understand the place value system.
- B. Perform operations with multi-digit whole numbers and with decimals to hundredths.

Number and Operations—Fractions

- A. Use equivalent fractions as a strategy to add and subtract fractions.
- B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

Measurement and Data

- A. Convert like measurement units within a given measurement system.
- B. Represent and interpret data.
- C. Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.

Key

■ = Domain

■ = Cluster

Geometry

- A. Graph points on the coordinate plane to solve real-world and mathematical problems.
- B. Classify two-dimensional figures into categories based on their properties.

6

Grade 6

Ratios and Proportional Relationships

- A. Understand ratio and rate concepts and use ratio reasoning to solve problems.

The Number System

- A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
- B. Compute fluently with multi-digit numbers and find common factors and multiples.
- C. Apply and extend previous understandings of numbers to the system of rational numbers.

Expressions and Equations

- A. Apply and extend previous understandings of arithmetic to algebraic expressions.
- B. Reason about and solve one-variable equations and inequalities.
- C. Represent and analyze quantitative relationships between dependent and independent variables.

Geometry

- A. Solve real-world and mathematical problems involving area, surface area, and volume.

Statistics and Probability

- A. Develop understanding of statistical variability.
- B. Summarize and describe distributions.

7

Grade 7

Ratios and Proportional Relationships

- A. Analyze proportional relationships and use them to solve real-world and mathematical problems.

The Number System

- A. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Expressions and Equations

- A. Use properties of operations to generate equivalent expressions.
- B. Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Geometry

- A. Draw, construct and describe geometrical figures and describe the relationships between them.
- B. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Statistics and Probability

- A. Use random sampling to draw inferences about a population.
- B. Draw informal comparative inferences about two populations.
- C. Investigate chance processes and develop, use, and evaluate probability models.

Key

■ = Domain

■ = Cluster

8

Grade 8

The Number System

- A. Know that there are numbers that are not rational, and approximate them by rational numbers.

Expressions and Equations

- A. Work with radicals and integer exponents.
- B. Understand the connections between proportional relationships, lines, and linear equations.
- C. Analyze and solve linear equations and pairs of simultaneous linear equations.

Functions

- A. Define, evaluate, and compare functions.
- B. Use functions to model relationships between quantities.

Geometry

- A. Understand congruence and similarity using physical models, transparencies, or geometry software.
- B. Understand and apply the Pythagorean Theorem.
- C. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

Statistics and Probability

- A. Investigate patterns of association in bivariate data.