CONTENT AREA: Mathematics

GRADE LEVEL: 3

Standard Descriptions:

In grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

(1) Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.

(2) Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, 1/2 of the paint in a small bucket could be less paint than 1/3 of the paint in a larger bucket, but 1/3 of a ribbon is longer than 1/5 of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.

(3) Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

(4) Students describe, analyze, and compare properties of two dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

Operations and Algebraic Thinking (OA)	Represent and solve problems involving multiplication and division.
	Understand properties of multiplication and the relationship between multiplication and division.
	Multiply and divide within 100.
	Solve problems involving the four operations, and identify and explain patterns in arithmetic.
Number and Operations in Base Ten (NBT)	Use place value understanding and properties of operations to perform multi-digit arithmetic.
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Number and Operations—Fractions (NF)	Develop understanding of fractions as numbers.
Measurement and Data (MD)	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
	Represent and interpret data.
	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
Geometry (G)	Reason with shapes and their attributes.

Grade Level/ Content Area	Alternate K-PREP Statements Aligned KAS Standards	KAS Standard
Grade 3 Mathematics	**(M-3.1)** Interpret products of whole numbers.	**KAS (3.OA.1)** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.
	(M-3.2) Demonstrate understanding of place value by rounding two digit whole numbers to the nearest 10.	**KAS (3.NBT.1)** Use place value understanding to round whole numbers to the nearest 10 or 100.
	(M-3.3) Tell time to the nearest minute and measure time intervals by solving word problems.	**KAS (3.MD.1)** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
	(M-3.4) Generate measurement data by measuring a variety of lengths to the inch or half-inch using standard units of measurement and show the data on a line plot.	**KAS (3.MD.4)** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves or quarters.

	(M-3.5) Understand that shapes in different categories may share attributes. Recognize rhombuses, rectangles and squares as examples of quadrilaterals.	**KAS (3.G.1)** 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.
	(M-3.6) Partition shapes into equal parts and express each part as a unit fraction of the whole.	**KAS (3.G.2)** 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.

Blue: Standards 1 through 3 (TEST WINDOW 1)
Yellow: Standards 4 through 6 (TEST WINDOW 2)