Grade 3 Common Core Mathematics

Student "I CAN" Statements

CRITICAL AREA OF FOCUS #1

Develop understanding of multiplication and division and strategies for multiplication and division within 100

I CAN…

- interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each.
- interpret whole-number quotients of whole numbers, (e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.)
- describe a context in which a number of shares or a number of groups can be expressed as division. (e.g. 24 children are placed equally into 6 cars. 24 ÷ 6 = 4)
- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.
- use drawings, sorting diagrams, and equations with a symbol for the unknown number to represent multiplication and division problems.
- determine the unknown whole number in a multiplication or division equation relating three whole numbers. (*For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, ? x 6 = 48, 6 x 8 = ?)*
- apply properties of operations (commutative, associative, and distributive) as strategies to reason when multiplying and dividing.
- show that a division problem has a related unknown-factor multiplication problem.
- fluently (accurately, efficiently, and with understanding) multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8)
- memorize with understanding all products of two one-digit numbers (by the end of Grade 3),
- solve two-step word problems using the four operations.
- represent word problems as equations using a letter to stand for the unknown quantity.
- assess the reasonableness of answers using mental computation, place value, and estimation strategies including rounding.
- identify and discuss arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.
- use place value understanding and properties of operations to perform multi-digit arithmetic.
- multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations.
- relate area to the operations of multiplication and addition using unit tiling covering and counting activities.
- find areas of rectilinear figures by decomposing them into nonoverlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
- use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* x *b* and *a* x *c*.
- use area models to represent the distributive property in mathematical reasoning

Created for Greater Cleveland Council of Teachers of Mathematics
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Adapted from 2010 Common Core State Standards for Mathematics

CRITICAL AREA OF FOCUS #2
Develop understanding of fractions, especially unit fractions (fractions with numerators of 1)

I CAN…

- demonstrate a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts
- discuss how a fraction a/b represents the quantity formed by a parts of size $1/b$.
  (e.g. 5/6 represents 5 parts that are 1/6)
- represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. describe that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.
- represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0 and describe how the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.
- demonstrate that two fractions are equivalent (equal) if they are the same size, or start and end on the same points on a number line.
- explain why simple fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. are equivalent, e.g., by using a visual fraction model. (Fraction bars, rectangular partitions, etc.)
- express whole numbers as fractions with denominator of 1, and recognize fractions that are equivalent to whole numbers (numerator is evenly divisible by denominator.
- compare two fractions with the same numerator ***or*** the same denominator and reason about their size or order on the number line.
- generate measurement data by measuring lengths using rulers marked by halves or fourths of an inch.
- show measurement data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

CRITICAL AREA OF FOCUS #3
Develop understanding of the structure of rectangular arrays and of area

- describe area as an attribute of plane figures and explain the concept of area measurement.
- define a square with side length of 1 unit as “a unit square,”
- demonstrate how a unit square can have “one square unit” of area, and can be used to measure area.
- measure areas by counting unit squares (square cm, square m, square in, square ft, or improvised units).
- use multiplication to find areas of rectangles with whole-number side lengths in the context of solving real world mathematical problems,
- use mathematical reasoning to represent whole-number products as rectangular areas consisting of square units.
- solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths,
- find an unknown side length of a figure using other information about the perimeter, and
- show how rectangles with the same perimeter can have different areas or how rectangles with the same area can have different perimeters.
- partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.

CRITICAL AREA OF FOCUS #4
Describe and analyze two-dimensional shapes

I CAN…

- recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
- organize shapes into different categories (e.g., rhombuses, rectangles, and others, identify shared attributes (e.g., having four sides), and show how the shared attributes can define a larger category.
- explain equivalence of commonly-used fractions, and compare fractions by reasoning about their size.

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