



Mathematics Arts State Standards Grade 3

Third grade students develop understanding of multiplication, division, and fractions. They learn to calculate a shape's area and perimeter, and they compare the properties of two-dimensional shapes. Third graders explain the relationship between multiplication and division, use tools to solve math problems, and relate area to multiplication and addition.

Standards for Mathematical Practice – “HOW” My student can:

- explain a math problem, create & use a plan to solve it, and check if the answer makes sense.
- make sense of and flexibly use math symbols, numbers, and operations. use objects, drawings, diagrams, actions and words to explain his/her approach to a math problem and decide if others' strategies make sense. recognize math in everyday life and use math to solve real problems.
- use tools (e.g., ruler, concrete models, paper/pencil) to solve problems and deepen understanding.
- calculate accurately, use precise math vocabulary, and explain problems/solutions clearly.
- describe how numbers and shapes are organized as parts and wholes. notice when calculations are repeated and look for general “rules” and shortcuts.

Math Content Standards – “WHAT” Multiplication and Division (Operations and Algebraic Thinking)

My student can:

- understand multiplication by thinking about groups of objects (e.g., 5×7 is the total number of objects in 5 groups of 7 objects each). 3.OA.1
- understand division by thinking about how one group can be divided into equal smaller groups (e.g., $56 \div 8$ is the number of objects in each group when 56 is separated into 8 equal groups). 3.OA.2
- use multiplication and division within 100 to solve word problems. 3.OA.3
- use strategies (e.g., drawings, equations with a symbol for the unknown number) to solve word problems involving equal groups, arrays, and measurement quantities. 3.OA.3

- find the missing number in a multiplication or division equation (e.g., $8 \times \underline{\quad} = 48$; $5 = \underline{\quad} \div 3$). 3.OA.4
- use the commutative property of multiplication (If $6 \times 4 = 24$, then $4 \times 6 = 24$). 3.OA.5 use the associative property of multiplication (To figure out $3 \times 5 \times 2$, multiply $3 \times 5 = 15$, then $15 \times 2 = 30$ OR multiply $5 \times 2 = 10$, then $3 \times 10 = 30$). 3.OA.5
- use the distributive property of multiplication [To figure out 8×7 , think of $8 \times (5 + 2)$ which means $(8 \times 5) + (8 \times 2) = 40 + 16 = 56$]. 3.OA.5
- find the answer to a division problem by thinking of the missing factor in a multiplication problem (e.g., Find $32 \div 8$ by figuring out the number that multiplies with 8 to make 32). 3.OA.6
- easily multiply and divide within 100 using a variety of strategies. 3.OA.7
- memorize all multiplication facts of two one-digit numbers (e.g., $3 \times 5 = 15$, $4 \times 6 = 24$). 3.OA.7
- use addition, subtraction, multiplication and division to solve two-step word problems; use mental math or estimation to decide if the answer is reasonable. 3.OA.8
- use a letter to represent an unknown number in $+$, $-$, \times , and \div word problems (e.g., $42 \div n = 7$). 3.OA.8
- find patterns in addition (including patterns in the addition and multiplication tables) and explain them using properties of operations (e.g., observe that 4 times a number is always even). 3.OA.9

Number Sense and Place Value (Number and Operations in Base Ten)

My student can:

- round numbers to the nearest 10 or 100. 3.NBT.1
- easily add and subtract numbers within 1000 using a variety of strategies.
- NBT.2
- quickly and easily multiply any one-digit whole number by 10. 3.NBT.3

Fractions (Number and Operations)

My student can:

- understand the meaning of the numerator and denominator in a fraction
- using terms like equal parts and whole. 3.NF.1
- understand fractions as numbers on the number line; label fractions on a number line. 3.NF.2 explain in words or pictures how two fractions can be equal (e.g., $1/2 = 2/4$; $4/6 = 2/3$). 3.NF.3
- compare fractions by reasoning about their size or place on a number line. 3.NF.3
- compare fractions using $<$, $=$, and $>$, and justify the conclusion with a visual model. 3.NF.3
- recognize whole numbers that are equal to fractions (e.g., $3 = 3/1$). NF.3

- recognize fractions that are equal to whole numbers (e.g., $4/4 = 1$).
NF.3

Measurement and Data

My student can:

- tell and write time to the nearest minute; measure time in minutes.
MD.1
- solve time word problems by adding and subtracting minutes. 3.MD.1
- measure and estimate volume & mass of liquids and solids using liters, grams and kilograms. 3.MD.2
- add, subtract, multiply and divide to solve word problems involving mass and volume. 3.MD.2
- create a scaled picture graph or bar graph to show data with several categories. 3.MD.3
- solve word problems (how many more, how many less) using data from scaled bar graphs. 3.MD.3
- use rulers to measure lengths of objects to the nearest whole, half or fourth of an inch. 3.MD.4
- create a line plot from measurement data, where the objects have been measured to the nearest whole number, half or quarter unit. 3.MD.4
- understand that the area of plane shapes can be measured in square units. 3.MD.5
- measure areas by counting unit squares (e.g., square cm, square inches, square feet). 3.MD.6
- measure area by using multiplication and addition. 3.MD.7 find the perimeter of plane figures; solve real world problems involving perimeter. 3.MD.8

Geometry

My student can:

- place shapes into categories depending upon their attributes (e.g., quadrilaterals, rhombuses). 3.G.1
- recognize and draw quadrilaterals such as rhombuses, rectangles and squares, as well as quadrilaterals that do not belong to any of these subcategories. 3.G.1
- divide shapes into parts with equal areas; show the area of each part as a fraction of the whole. G.2