3rd Grade Math Benchmarks

1st Nine Weeks

Maintain the concepts of the comparison of numbers, addition and subtraction of multi-digit numbers, length, geometric shapes, and money.

M3N1. Students will further develop their understanding of whole numbers and ways of representing them.
   a. Identify place values from tenths through ten thousands.
   b. Understand the relative sizes of digits in place value notation (10 times, 100 times, 1/10 of a single digit whole number) and ways to represent them.

M3N2. Students will further develop their skills of addition and subtraction and apply them in problem solving.
   b. Use mental math strategies to add and subtract.
   c. Solve problems requiring addition and subtraction. (computation)

M3N3. Students will further develop their understanding of multiplication of whole numbers and develop the ability to apply it in problem solving.
   b. Know the multiplication facts with understanding and fluency (2’s, 5’s, 9’s, and 10’s).

M3M3. Students will understand and measure the perimeter of simple geometric figures (squares and rectangles).
   a. Understand the meaning of the linear unit in measuring perimeter.
   b. Understand the concept of perimeter as being the boundary of a simple geometric figure.
   c. Determine the perimeter of a simple geometric figure by measuring and summing the lengths of the sides.

M3G1. Students will further develop their understanding of geometric figures by drawing them. They will also state and explain their properties.
   a. Draw and classify previously learned fundamental geometric figures as well as scalene, isosceles, and equilateral triangles.
   b. Identify and explain the properties of fundamental geometric figures.
   c. Examine and compare angles of fundamental geometric figures.
   d. Identify the center, diameter, and radius of a circle.

M3A1. Students will use mathematical expressions to represent relationships between quantities and interpret given expressions.
   c. Use a symbol, such as a square and a triangle, to represent an unknown and find the value of the unknown in a number sentence. (addition and subtraction)

2nd Nine Weeks

Maintain the concepts of the comparison of numbers, money, and area models (arrays) of multiplication.

M3N2. Students will further develop their skills of addition and subtraction and apply them in problem solving.
a. Use the properties of addition and subtraction to compute and verify the results of computation.
b. Use estimation strategies to add and subtract.
c. Solve problems requiring addition and subtraction. (word problems)

M3N3. Students will further develop their understanding of multiplication of whole numbers and develop the ability to apply it in problem solving.
   a. Describe the relationship between addition and multiplication, i.e., multiplication is defined as repeated addition.
   b. Know the multiplication facts with understanding and fluency (0’s, 1’s, 3’s, and 4’s).
   f. Use mental math strategies to multiply.

M3N4. Students will understand the meaning of division and develop the ability to apply it in problem solving.
   a. Understand the relationship between division and multiplication and between division and subtraction.
   b. Recognize that division may be two situations: the first is determining how many equal parts of a given size or amount may be taken away from the whole as in repeated subtraction, and the second is determining the size of the parts when the whole is separated into a given number of equal parts as in a sharing model.

M3A1. Students will use mathematical expressions to represent relationships between quantities and interpret given expressions.
   a. Describe and extend numeric and geometric patterns.

M3D1. Students will create and interpret simple tables and graphs.
   a. Solve problems by organizing and displaying data in bar graphs and tables.
   b. Construct and interpret bar graphs using scale increments of 1, 2, 5, and 10.

3rd Nine Weeks

Maintain the concept of time.

M3N3. Students will further develop their understanding of multiplication of whole numbers and develop the ability to apply it in problem solving.
   b. Know the multiplication facts with understanding and fluency (6’s, 7’s, and 8’s).
   c. Use arrays and area models to develop understanding of the distributive property and to determine partial products for multiplication of 2- or 3-digit numbers by a 1-digit number.
   d. Understand the effect on the product when multiplying by multiples of 10.
   e. Apply the identity, commutative, and associative properties of multiplication and verify the results.
   f. Use estimation strategies to multiply.
   g. Solve problems requiring multiplication.

M3N4. Students will understand the meaning of division and develop the ability to apply it in problem solving.
   c. Recognize problem-solving situations in which division may be applied and write corresponding mathematical expressions.
M3N5. Students will understand the meaning of decimals and common fractions in simple cases and apply them in problem-solving situations.
   a. Understand a decimal (i.e., 0.1) and a common fraction (i.e., 1/10) represent parts of a whole.
   b. Understand the fraction $a/b$ represents $a$ equal sized parts of a whole that is divided into $b$ equal sized parts.
   c. Understand a one place decimal represents tenths, i.e., $0.3 = 3/10$.
   d. Know and use decimals and common fractions to represent the size of parts created by equal divisions of a whole.

M3M1. Students will further develop their understanding of the concept of time by determining elapsed time of a full, half, and quarter-hour.

M3M4. Students will understand and measure the area of simple geometric figures (squares and rectangles).
   a. Understand the meaning of the square unit in measuring area.
   b. Model (by tiling) the area of a simple geometric figure using square units (square inch, square foot, etc.).
   c. Determine the area of squares and rectangles by counting, adding, and multiplying with models.

M3A1. Students will use mathematical expressions to represent relationships between quantities and interpret given expressions.
   b. Describe and explain a quantitative relationship represented by a formula (such as the perimeter of a geometric figure).
   c. Use a symbol, such as a square and a triangle, to represent an unknown and find the value of the unknown in a number sentence. (multiplication and division)

4th Nine Weeks

M3N4. Students will understand the meaning of division and develop the ability to apply it in problem solving.
   d. Explain the meaning of a remainder in division in different circumstances.
   e. Divide a 2 and 3-digit number by a 1-digit divisor.
   f. Solve problems requiring division.

M3N5. Students will understand the meaning of decimals and common fractions in simple cases and apply them in problem-solving situations.
   e. Understand the concept of addition and subtraction of decimals and common fractions with like denominators.
   f. Model addition and subtraction of decimals and common fractions.
   g. Solve problems involving fractions.

M3M2. Students will measure length choosing appropriate units and tools.
   a. Use the units kilometer (km) and mile (mi.) to discuss the measure of long distances.
   b. Measure to the nearest $\frac{1}{4}$ inch, $\frac{1}{2}$ inch, and millimeter 9mm) in addition to the previously learned inch, foot, yard, centimeter, and meter.
   c. Estimate length and represent it using appropriate units.
   d. Compare one unit to another within a single system of measurement.