Springfield Public Schools

FOURTH GRADE

The intent of the Springfield R-12 Elementary Mathematics Program is to explore, investigate, and understand the importance of mathematics through real-world experiences. In mathematics, students will acquire the knowledge and skills to solve problems, communicate, reason, create models, and make connections.

The student will:

1. Understand concepts of **Numbers and Operations** including:

    a. Read, write and compare decimals to the hundredths place and whole numbers up to 6 digits. (MA5 1.10)
    b. Use models, benchmarks (0, ½, and 1) and equivalent forms to judge the size of fractions. (MA1 3.3)
    c. Recognize equivalent representations for the same number and generate them by decomposing and composing numbers. (MA1 3.6)
    d. Classify and describe numbers by their characteristics, including odd, even, and multiples. (MA1 1.0)
    e. Represent and recognize multiplication using various models, including sets and arrays. (MA1 3.6)
    f. Apply commutative and identity properties of multiplication to whole numbers. (MA5 1.6, 1.10)
    g. Represent a mental strategy used to compute a given multiplication problem (up to 2-digit by 2-digit multiple of). (MA5 3.3)
    h. Demonstrate fluency with basic number relationships (12 x 12) of multiplication and division. (MA1 1.6)
    i. Apply and describe the strategy used to compute a given (a) multiplication problem up to a 2- digit by 2 –digit problem and (b) division problem up to a 3-digit by 1-digit. (MA5 3.3, 4.1)
    j. Estimate and justify the results of multiplication of whole numbers. (MA1 3.3, 4.1)

2. Understand and use the concepts of **Algebraic Relationships** including:

    a. Describe geometric and numeric patterns. (MA4 1.6 , 4.1)
    b. Analyze patterns using words, tables and graphs. (MA4 1.6, 3.6)
    c. Represent a mathematical situation as an expression or number sentence. (MA4 1.6, 3.1)
    d. Apply the commutative property of multiplication to whole numbers. (MA5 3.1)
    e. Model problem situations, using representations such as graphs, tables, or number sentences. (MA4 1.6, 3.6)
    f. Describe mathematical relationships in terms of constant rates of change. (MA4 4.1)

3. Describe, analyze and apply the concepts of **Geometric and Spatial Relationships** including:

   a. Identify and describe the attributes of 2-dimensional and 3-dimenstional shapes (prisms, cones, parallelism, perpendicularity). (MA2 1.6, 1.10)
   b. Describe the results of subdividing, combining, and transforming shapes. (MA2 1.6, 4.1)
   c. Describe movement using common language and geometric vocabulary (forward, back, left, right, north, south, east, west). (MA2 3.3, 4.1)
   d. Predict the results of sliding/ translating, flipping/reflecting, or turning/rotating around the center point of a polygon. (MA2 3.6, 4.1)
   e. Construct a figure with multiple lines of symmetry and identify the lines of symmetry. (MA2 1.10)
   f. Given the picture of a prism, identify the shapes of the faces. (MA2 3.3)

4. Understand and apply the concepts of **Measurement** including:

   a. Identify and justify the unit of linear measure including perimeter (customary and metric). (MA2 3.1, 4.1)
   b. Identify equivalent linear measures within a system of measurement. (MA2 1.6)
   c. Tell time to the nearest minute. (MA2 3.3)
   d. Determine change from $10.00 and add and subtract money values to $10.00.
   e. Select and use benchmarks to estimate measurements (linear, capacity, weight). (MA2 1.6, 3.3)
   f. Select and use benchmarks to estimate measurements of 0-, 45-, 90- degree angles. (MA2 3.4)
   g. Determine the area of a polygon on a rectangular grid. (MA2 1.10)

5. Apply the concepts of **Data and Probability** including

   a. Collect data using observations, surveys, and experiments. (MA3 1.2)
   b. Create tables or graphs to represent categorical and numerical data (including line plots.) (MA3 1.8)
   c. Describe important features of the data set. (MA3 4.1)
   d. Given a set of data, propose and justify conclusions that are based on the data. (MA3 3.1, 4.1)