Springfield Public Schools

Fifth Grade

The intent of Springfield R-12 Elementary School Mathematics Programs 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, compare and order unit fractions and decimals to thousandths. (MA 5 3.3)
    b. Recognize and generate equivalent forms of commonly used fractions, decimals and percents. (MA 1 3.3)
    c. Recognize equivalent representations for the same number and generate them by decomposing and composing numbers. (MA 1 3.6)
    d. Describe numbers according to their characteristics, including whole number factors, multiples, prime or composite, odd or even and square numbers. (MA 5 1.10)
    e. Represent and recognize division using various models, including quotative and partitive. (MA 1 3.6)
    f. Describe the effects of multiplying and dividing whole numbers as well as the relationship between the two operations. (MA 5 3.4, 4.1)
    g. Apply the distributive and associative properties to whole numbers. (MA 5 1.6, 1.10)
    h. Describe a mental strategy used to compute a given division problem, where the quotient is a multiple of 10 and the divisor is a 1-digit number (e.g., 350/7). (MA1 1.4, 3.3)
    i. Apply and describe the strategy used to compute a given division problem up to a 3-digit by 2-digit. (MA 1 3.3, 4.1)
    j. Estimate and justify the results of division of whole numbers. (MA 1 3.3,4.1)

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

    a. Make and describe generalizations about geometric and numeric patterns. (MA 4 1.6, 4.1)
    b. Represent and analyze patterns using words, tables and graphs. (MA 4 1.6, 3.6)
    c. Represent a mathematical situation as an expression or number sentence using a letter or symbol. (MA 4 1.6, 3.1)
    d. Apply the distributive and associative properties to whole numbers. (MA 5 3.1)
    e. Model problem situations and draw conclusions, using representations such as graphs, tables or number sentences. (MA 4 1.6, 3.6)

f. Identify, model and describe situations with constant or varying rates of change. (MA 4 1.6, 4.1)

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

   a. Analyze 2- and 3-dimensional shapes by describing the attributes. (MA 2 1.5, 4.1)
   b. Predict and justify the results of subdividing, combining and transforming shapes. (MA 2 1.6, 4.1)
   c. Use coordinate systems to specify locations, describe paths and find the distance between points along horizontal and vertical lines. (MA 2 1.6, 1.8)
   d. Predict, draw and describe the results of sliding/translating, flipping/reflecting and turning/rotating around the center point of a polygon. (MA 2 3.6, 4.1)
   e. Identify polygons and designs with rotational symmetry. (MA 2 1.6)
   f. Given a net of a prism or cylinder, identify the 3-dimensional shape. (MA 2 3.3)

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

   a. Identify and justify the unit of measure for area (customary and metric). (MA 2 3.1, 4.1)
   b. Identify the equivalent weights and equivalent capacities within a system of measurement. (MA 2 1.6)
   c. Solve problems involving elapsed time (hours).
   d. Estimate a measurement using either standard or nonstandard unit of measurement. (MA 2 1.6, 3.3)
   e. Select and use benchmarks to estimate measurements of 0, 45, 90, and 180 degree angles. (MA 2 3.4)
   f. Describe how to solve problems involving he area of polygons and non-polygonal regions imposed on a rectangular grid. (MA 2 3.1, 4.1)
   g. Convert from one unit to another within a system of measurement (linear). (MA 2 1.6, 1.10)

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

   a. Evaluate data-collection methods. (MA 3 1.2)
   b. Describe methods to collect, organize and represent categorical and numerical data. (MA 3 1.2)
   c. Compare related data sets. (MA 3 3.6)
   d. Compare different representations of the same data and evaluate how well each representation shows important aspects of the data. (MA 3 3.6)
   e. Given a set of data, make and justify prediction(s). (MA 3 3.1, 4.1)
   f. Describe the degree of likelihood of events using such words as certain, equally likely and impossible. (MA 3 4.1)