Mathematics
Grade-Level Expectations: Grade 6

Number and Number Relations

1. Factor whole numbers into primes (N-1-M)
2. Determine common factors and common multiples for pairs of whole numbers (N-1-M)
3. Find the greatest common factor (GCF) and least common multiple (LCM) for whole numbers in the context of problem-solving (N-1-M)
4. Recognize and compute equivalent representations of fractions and decimals (i.e., halves, thirds, fourths, fifths, eighths, tenths, hundredths) (N-1-M) (N-3-M)
5. Decide which representation (i.e., fraction or decimal) of a positive number is appropriate in a real-life situation (N-1-M) (N-5-M)
6. Compare positive fractions, decimals, and positive and negative integers using symbols (i.e., <, =, >) and number lines (N-2-M)
7. Read and write numerals and words for decimals through ten-thousandths (N-3-M)
8. Demonstrate the meaning of positive and negative numbers and their opposites in real-life situations (N-3-M) (N-5-M)
9. Add and subtract fractions and decimals in real-life situations (N-5-M)
10. Use and explain estimation strategies to predict computational results with positive fractions and decimals (N-6-M)
11. Mentally multiply and divide by powers of 10 (e.g., 25/10 = 2.5; 12.56 x 100 = 1,256) (N-6-M)
12. Divide 4-digit numbers by 2-digit numbers with the quotient written as a mixed number or a decimal (N-7-M)
13. Use models and pictures to explain concepts or solve problems involving ratio, proportion, and percent with whole numbers (N-8-M)

Algebra

14. Model and identify perfect squares up to 144 (A-1-M)
15. Match algebraic equations and expressions with verbal statements and vice versa (A-1-M) (A-3-M) (A-5-M) (P-2-M)
16. Evaluate simple algebraic expressions using substitution (A-2-M)
17. Find solutions to 2-step equations with positive integer solutions (e.g., $3x - 5 = 13$, $2x + 3x = 20$) (A-2-M)

Measurement

18. Measure length and read linear measurements to the nearest sixteenth-inch and mm (M-1-M)
19. Calculate perimeter and area of triangles, parallelograms, and trapezoids (M-1-M)
20. Calculate, interpret, and compare rates such as $/lb., mpg, and mph (M-1-M) (A-5-M)
21. Demonstrate an intuitive sense of relative sizes of common units for length and area of familiar objects in real-life problems (e.g., estimate the area of a desktop in square feet, the average adult is between 1.5 and 2 meters tall) (M-2-M) (G-1-M)
22. Estimate perimeter and area of any 2-dimensional figure (regular and irregular) using standard units (M-2-M)
23. Identify and select appropriate units to measure area (M-3-M)

Geometry

24. Use mathematical terms to describe the basic properties of 3-dimensional objects (edges, vertices, faces, base, etc.) (G-2-M)
25. Relate polyhedra to their 2-dimensional shapes by drawing or sketching their faces (G-2-M) (G-4-M)
26. Apply concepts, properties, and relationships of points, lines, line segments, rays, diagonals, circles, and right, acute, and obtuse angles and triangles in real-life situations, including estimating sizes of angles (G-2-M) (G-5-M) (G-1-M)

27. Make and test predictions regarding tessellations with geometric shapes (G-3-M)
28. Use a rectangular grid and ordered pairs to plot simple shapes and find horizontal and vertical lengths and area (G-6-M)

Data Analysis, Probability, and Discrete Math

29. Collect, organize, label, display, and interpret data in frequency tables, stem-and-leaf plots, and scatter plots and discuss patterns in the data verbally and in writing (D-1-M) (D-2-M) (A-3-M)
30. Describe and analyze trends and patterns observed in graphic displays (D-2-M)
31. Demonstrate an understanding of precision, accuracy, and error in measurement (D-2-M) (M-2-M)
32. Calculate and discuss mean, median, mode, and range of a set of discrete data to solve real-life problems (D-2-M)
33. Create and use Venn diagrams with two overlapping categories to solve counting logic problems (D-3-M)
34. Use lists, tree diagrams, and tables to determine the possible combinations from two disjoint sets when choosing one item from each set (D-4-M)
35. Illustrate and apply the concept of complementary events (D-5-M)
36. Apply the meaning of *equally likely* and *equally probable* to real-life situations (D-5-M) (D-6-M)

Patterns, Relations, and Functions

37. Describe, complete, and apply a pattern of differences found in an input-output table (P-1-M) (P-2-M) (P-3-M)
38. Describe patterns in sequences of arithmetic and geometric growth and now-next relationships (i.e., growth patterns where the next term is dependent on the present term) with numbers and figures (P-3-M) (A-4-M)