| **Required Course Numbers** | | | | | | | | | | | |
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| **Test Content Categories** |  |  |  |  |  |  |  |  |  |  |  |
| I. **Counting and Operations with Whole Numbers (30%)** |  |  |  |  |  |  |  |  |  |  |  |
| **A. Counting** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Counts and skip counts whole numbers between 0 and 1,000 |  |  |  |  |  |  |  |  |  |  |  |
| 2. Counts on, starting with any whole number |  |  |  |  |  |  |  |  |  |  |  |
| 3. Connects counting to cardinality |  |  |  |  |  |  |  |  |  |  |  |
| 4. Demonstrates understanding of one-to-one correspondence between numbers and objects being counted |  |  |  |  |  |  |  |  |  |  |  |
| 5. Subitizes (recognizes small quantities by sight) |  |  |  |  |  |  |  |  |  |  |  |
| 6. Identifies relationships between counting and the concept of larger and smaller numbers (i.e., that sets with higher counts are larger than sets with smaller counts) |  |  |  |  |  |  |  |  |  |  |  |
| **B. Operations with Whole Numbers** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Demonstrates understanding of representations of addition, subtraction, multiplication, and division (including objects such as manipulatives, drawings, and diagrams) and relates these representations of operations to expressions and equations |  |  |  |  |  |  |  |  |  |  |  |
| 2. Solves mathematical and real-world problems involving the four operations, including solving problems by using properties of operations |  |  |  |  |  |  |  |  |  |  |  |
| II. **Place Value and Decimals (25%)** |  |  |  |  |  |  |  |  |  |  |  |
| **A. Place Value and Decimals** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Demonstrates a conceptual understanding of the value of the digits in a number |  |  |  |  |  |  |  |  |  |  |  |
| 2. Compares multidigit and decimal numbers |  |  |  |  |  |  |  |  |  |  |  |
| 3. Rounds multidigit and decimal numbers |  |  |  |  |  |  |  |  |  |  |  |
| 4. Composes and decomposes multidigit numbers into groupings and understands why grouping and ungrouping are helpful in performing operations on multidigit and decimal numbers |  |  |  |  |  |  |  |  |  |  |  |
| 5. Uses drawings and objects such as manipulatives to represent place value, relating these drawings and objects to numerical equations and written descriptions |  |  |  |  |  |  |  |  |  |  |  |
| III. **Fractions, Operations with Fractions, and Ratios (25%)** |  |  |  |  |  |  |  |  |  |  |  |
| **A. Fractions, Operations with Fractions, and Ratios** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Demonstrates understanding of fractions as part-whole relationships, as multiples of unit fractions, as numbers, and as ratios, moving back and forth flexibly among these conceptualizations |  |  |  |  |  |  |  |  |  |  |  |
| 2. Demonstrates understanding of characteristics of fractions that are less than one, equal to one, and greater than one |  |  |  |  |  |  |  |  |  |  |  |
| 3. Demonstrates understanding of equipartitioning and that it is a building block for understanding fractions as part-whole relationships |  |  |  |  |  |  |  |  |  |  |  |
| 4. Demonstrates understanding of fraction equivalence |  |  |  |  |  |  |  |  |  |  |  |
| 5. Uses a variety of strategies for comparing fractions |  |  |  |  |  |  |  |  |  |  |  |
| 6. Performs operations such as addition, subtraction, multiplication, and division with fractions as well as with fractions and whole numbers, understanding and using different strategies for these operations and building intuition about how the operations work (e.g., recognizing that multiplying a whole number by a fraction that is less than one makes the product smaller) |  |  |  |  |  |  |  |  |  |  |  |
| 7. Demonstrates understanding of applications of operations on fractions (e.g., scaling) |  |  |  |  |  |  |  |  |  |  |  |
| IV. **Early Equations and Expressions, Measurement, and Geometry (20%)** |  |  |  |  |  |  |  |  |  |  |  |
| **A. Early Equations and Expressions** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Demonstrates understanding of what it means for algebraic terms, expressions, and equations to be considered equivalent, how the equal sign is used to represent relational equivalence, and that equations maintain their equivalence status under certain algebraic manipulations |  |  |  |  |  |  |  |  |  |  |  |
| 2. Determines whether equations are true, identifies the missing values that would make them true, solves equations using the four operations, and solves relational statements by substitution |  |  |  |  |  |  |  |  |  |  |  |
| 3. Follows the standard order of operations (including the use of parentheses and the distributive property of multiplication over addition) |  |  |  |  |  |  |  |  |  |  |  |
| 4. Demonstrates awareness of different interpretations of the word “variable,” including the ideas of quantities that are unknown (which underlies understanding how to solve equations) and quantities that vary (which can be connected to patterns and will support later understanding of functional relationships) |  |  |  |  |  |  |  |  |  |  |  |
| 5. Uses the less-than and greater-than relational symbols (<, >) to compare quantities |  |  |  |  |  |  |  |  |  |  |  |
| **B. Measurement** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Describes measurable attributes of objects |  |  |  |  |  |  |  |  |  |  |  |
| 2. Compares two objects with a common measurable attribute |  |  |  |  |  |  |  |  |  |  |  |
| 3. Chooses appropriate measurement tools and uses the tools to take measurements |  |  |  |  |  |  |  |  |  |  |  |
| 4. Calculates and estimates perimeter, area, volume, and measurements of angles in mathematical and real-world problems |  |  |  |  |  |  |  |  |  |  |  |
| 5. Converts between measurement units |  |  |  |  |  |  |  |  |  |  |  |
| **C. Geometry** |  |  |  |  |  |  |  |  |  |  |  |
| 1. Demonstrates understanding of shapes and their attributes |  |  |  |  |  |  |  |  |  |  |  |
| 2. Composes and decomposes shapes |  |  |  |  |  |  |  |  |  |  |  |
| 3. Draws shapes based on specific attributes such as number of angles and number of equal faces |  |  |  |  |  |  |  |  |  |  |  |
| 4. Demonstrates understanding of lines, line segments, rays, and angles in two-dimensional figures |  |  |  |  |  |  |  |  |  |  |  |
| 5. Classifies two-dimensional figures based on properties |  |  |  |  |  |  |  |  |  |  |  |