

Praxis® Elementary Education: Mathematics Subtest (5003) Curriculum Crosswalk

Page | 1

Test Content Categories	Required Course Numbers										
I. Numbers and Operations (40%)											
A. Understands the place value system											
1. Writes numbers using base-10 numerals, number names, and expanded form											
2. Composes and decomposes multi-digit numbers											
3. Given a digit, identifies the place the digit is in and its value in that place											
4. Recognizes that a digit in one place represents ten times what it represents in the place to its right and one-tenth what it represents in the place to its left, and extends this recognition to several places to the right or left											
5. Uses whole-number exponents to denote powers of 10											
6. Rounds multi-digit numbers to any place value											
B. Understands operations and properties of rational numbers											
1. Solves multistep mathematical and real-world problems using addition, subtraction, multiplication, and division of rational numbers											
a) Identifies different problem situations for the operations (e.g., adding to, taking from, putting together, taking apart, and comparing for subtraction)											

Praxis® Elementary Education: Mathematics Subtest (5003) Curriculum Crosswalk

Page | 2

Test Content Categories	Required Course Numbers										
b) Uses the relationship between addition and subtraction and the relationship between multiplication and division to solve problems (e.g., inverse operations)											
c) Interprets remainders in division problems											
2. Understands various strategies and algorithms used to perform operations on rational numbers											
3. Recognizes concepts of rational numbers and their operations											
a) Identifies examples where multiplication does not result in a product greater than both factors and division does not result in a quotient smaller than the dividend											
b) Composes and decomposes fractions, including the use of unit fractions.											
c) Recognizes that the value of a unit fraction decreases as the value of the denominator increases											
d) Recognizes that the same whole must be used when comparing fractions											
4. Solves problems using the order of operations, including problems involving whole number exponents											
5. Identifies properties of operations (e.g., commutative, associative, distributive) and uses them to solve problems											

Praxis® Elementary Education: Mathematics Subtest (5003) Curriculum Crosswalk

Page | 3

Test Content Categories	Required Course Numbers										
6. Represents rational numbers and their operations in different ways											
a) Uses, interprets, and explains concrete models or drawings of the addition, subtraction, multiplication, and division of rational numbers											
b) Represents rational numbers and sums and differences of rational numbers on a number line											
c) Illustrates and explains multiplication and division problems using equations, rectangular arrays, and area models											
6. Compares, classifies, and orders rational numbers											
7. Converts between fractions, decimals, and percents											
C. Understands proportional relationships and percents											
1. Applies the concepts of ratios and unit rates to describe relationships between two quantities											
2. Understands percent as a rate per 100											
3. Solves unit-rate problems											
4. Uses proportional relationships to solve ratio and percent problems											
D. Knows how to use basic concepts of number theory											

Praxis® Elementary Education: Mathematics Subtest (5003)
Curriculum Crosswalk

Page | 4

Test Content Categories	Required Course Numbers										
1. Identifies and uses prime and composite numbers											
2. Finds factors and multiples of numbers											
E. Knows a variety of strategies to determine the reasonableness of results											
1. Recognizes the reasonableness of results within the context of a given problem											
2. Uses mental math, estimation, and rounding strategies to solve problems and determine reasonableness of results											
II. Algebraic Thinking (30%)											
A. Knows how to evaluate and manipulate algebraic expressions, equations, and formulas											
1. Differentiates between algebraic expressions and equations											
2. Adds and subtracts linear algebraic expressions											
3. Uses the distributive property to generate equivalent linear algebraic expressions											
4. Evaluates simple algebraic expressions (i.e., one variable, binomial) for given values of variables											
5. Uses mathematical terms to identify parts of expressions and describe expressions											
6. Translates between verbal statements and algebraic expressions or equations (e.g., the phrase “the number of cookies Joe has is equal to twice the number of cookies Sue has” can be represented by the equation $j = 2s$)											

Praxis® Elementary Education: Mathematics Subtest (5003) Curriculum Crosswalk

Page | 5

Test Content Categories	Required Course Numbers										
7. Uses formulas to determine unknown quantities											
8. Differentiates between dependent and independent variables in formulas											
B. Understands the meanings of the solutions to linear equations and inequalities											
1. Solves multistep one-variable linear equations and inequalities											
2. Interprets solutions of multistep one-variable linear equations and inequalities (e.g., graphs the solution on a number line, states constraints on a situation)											
3. Uses linear relationships represented by equations, tables, and graphs to solve problems											
C. Knows how to recognize and represent patterns (e.g., number, shape)											
1. Identifies, extends, describes, or generates number and shape patterns											
2. Makes conjectures, predictions, or generalizations based on patterns											
3. Identifies relationships between the corresponding terms of two numerical patterns (e.g., find a rule for a function table)											
III. Geometry and Measurement, Data, Statistics, and Probability (30%)											
A. Understands how to classify one-, two-, and three-dimensional figures											
1. Uses definitions to identify lines, rays, line segments, parallel lines, and perpendicular lines											

Praxis® Elementary Education: Mathematics Subtest (5003) Curriculum Crosswalk

Page | 6

Test Content Categories	Required Course Numbers										
2. Classifies angles based on their measure											
3. Composes and decomposes two- and three-dimensional shapes											
4. Uses attributes to classify or draw polygons and solids											
B. Knows how to solve problems involving perimeter, area, surface area, and volume											
1. Represents three-dimensional figures with nets											
2. Uses nets that are made of rectangles and triangles to determine the surface area of three-dimensional figures											
3. Finds the area and perimeter of polygons, including those with fractional side lengths											
4. Finds the volume and surface area of right rectangular prisms, including those with fractional edge lengths											
5. Determines how changes to dimensions change area and volume											
C. Knows the components of the coordinate plane and how to graph ordered pairs on the plane											
1. Identifies the x-axis, the y-axis, the origin, and the four quadrants in the coordinate plane											
2. Solves problems by plotting points and drawing polygons in the coordinate plane											
D. Knows how to solve problems involving measurement											
1. Solves problems involving elapsed time, money, length, volume, and mass											

Praxis® Elementary Education: Mathematics Subtest (5003) Curriculum Crosswalk

Page | 7

Test Content Categories	Required Course Numbers										
2. Measures and compares lengths of objects using standard tools											
3. Knows relative sizes of United States customary units and metric units											
4. Converts units within both the United States customary system and the metric system											
E. Is familiar with basic statistical concepts											
1. Identifies statistical questions											
2. Solves problems involving measures of center (mean, median, mode) and range											
3. Recognizes which measure of center best describes a set of data											
4. Determines how changes in data affect measures of center or range											
5. Describes a set of data (e.g., overall patterns, outliers)											
F. Knows how to represent and interpret data presented in various forms											
1. Interprets various displays of data (e.g., box plots, histograms, scatterplots)											
2. Identifies, constructs, and completes graphs that correctly represent given data (e.g., circle graphs, bar graphs, line graphs, histograms, scatterplots, double bar graphs, double line graphs, box plots, and line plots/dot plots)											
3. Chooses appropriate graphs to display data											

Praxis® Elementary Education: Mathematics Subtest (5003) Curriculum Crosswalk

Page | 8

Test Content Categories	Required Course Numbers										
G. Is familiar with how to interpret the probability of events											
1. Interprets probabilities relative to likelihood of occurrence											