

Mathematics: Categories for Analyzing Content Expectations

Domain	Description
Algebra	<p><u>Pre-Algebra</u></p> <ul style="list-style-type: none"> • Representing numerical situations • Operations with expressions • Evaluation • Simplification/equivalent expressions • General number sense • Number patterns • Properties and operations on integers and rational numbers • Rational numbers and equivalent forms <p><u>Basic Algebra</u></p> <ul style="list-style-type: none"> • Slope • Solving linear equations and inequalities • Linear interpolation or extrapolation • Relations and functions and their properties • Interpreting function graphs • Representation of relations and functions • Families of functions <p><u>Advanced Algebra</u></p> <ul style="list-style-type: none"> • Solving quadratic, polynomial, logarithmic, and exponential equations • Solving systems of linear equations and inequalities • Operations on functions • Related functions (e.g., inverse) • Functions of several variables • Properties and operations with real numbers • Concept of real numbers and subsets of real numbers • Exponents, roots, and radicals • Concept of complex numbers and their various forms
Geometry/ Measurement	<p><u>Transformation, Congruence, and Similarity</u></p> <ul style="list-style-type: none"> • Transformations and symmetry • Similarity and congruence • Proportion based on similarity <p><u>2-D Geometry/Measurement</u></p> <ul style="list-style-type: none"> • Basics such as points, lines, angles, parallelism, and perpendicularity • Properties of polygons and circles • Pythagorean Theorem • Geometric constructions • Line and coordinate graphs (2-D) • Equations of lines in the coordinate grid • Conic sections and their graphs • Computations, formulas, and properties of perimeter and area <p><u>3-D Geometry/Measurement</u></p> <ul style="list-style-type: none"> • 3-D shapes and their properties • Planes, lines, and surfaces in space • Spatial perception and visualization • 3-D coordinate geometry • Computations, formulas, and properties of surface area and volume

Domain	Description
	<p data-bbox="443 289 591 317"><u>Trigonometry</u></p> <ul data-bbox="492 317 943 380" style="list-style-type: none"> • Right triangle trigonometry • Trigonometric equations and identities <p data-bbox="443 411 651 438"><u>Basic Measurement</u></p> <ul data-bbox="492 438 954 499" style="list-style-type: none"> • Units of measure • Precision and accuracy of measurement
Number	<ul data-bbox="492 506 1214 982" style="list-style-type: none"> • Place value, ordering, and comparing whole numbers • Operations with whole numbers • Properties of whole numbers • Representing and computing with fractions and decimals • Relationships of decimals and fractions • Percentages • Properties of fractions and decimals • Number theory, including primes and factorization • Systematic counting, including combinations and permutations • Estimating quantity and size • Estimating computations • Rounding and significant figures • Meaning of ratio and proportion • Direct and inverse proportion • Solving proportional equations and practical problems involving proportionality or scales
Statistics	<ul data-bbox="492 995 1036 1381" style="list-style-type: none"> • Collecting and representing data • Interpreting graphs and charts • Measures of central tendency and dispersion • Sampling • Making predictions and inferences • Fitting lines and curves to data • Correlations • Use and misuse of statistics • Informal likelihood • Probability and probability models • Probability distributions • Conditional probability and independent events • Expectation