Concept	Competencies	Grade Level Vocabulary
Rational numbers and irrational numbers	Distinguish between rational and irrational numbers using their properties. Convert a terminating or repeating decimal into a rational number. Use rational approximations of irrational numbers to compare the size of irrational numbers. (CC.2.1.8.E.1) (CC.2.1.8.E.4)	**The Number System** Real Numbers, Irrational numbers, Rational numbers, Integers, Whole numbers, Natural numbers, radical, radicand, square roots, perfect squares, cube roots, terminating decimals, repeating decimals, truncate **Expressions and Equations** laws of exponents, power, perfect squares, perfect cubes, root, square root, cube root, scientific notation, standard form of number unit rate, proportional relationships, slope, vertical, horizontal intersecting, parallel lines, coefficient, distributive property, like terms, substitution, system of linear equations similar **Functions** functions, *y*-value, *x*-value, vertical line test, input, output, rate of change, linear function, non-linear function linear relationship, rate of change, slope, initial value, y-intercept **Geometry** translations, rotations, reflections, line of reflection, center of rotation, clockwise,
Expressions **Linear equations** **Functions**	Apply concepts of integer exponents to generate equivalent expressions. Use and evaluate square roots and cube roots to represent solutions to equations. (CC.2.2.8.B.1) Analyze and describe linear relationships between two variables, using slope. Make connections between slope, lines and linear equations. Analyze, model and solve linear equations. Analyze and solve pairs of simultaneous equations. Interpret solutions to a linear equation and systems of two linear equations. (CC.2.2.8.B.2) (CC.2.2.8.B.3) Define, interpret, and compare functions displayed algebraically, graphically, numerically in tables, or by verbal descriptions. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. (CC.2.2.8.C.1) (CC.2.2.8.C.2)	

Geometric Relationships	Apply concepts of volume of cylinders, cones and spheres to solve real-world and mathematical problems. Use transformations to demonstrate congruence and similarity of geometric figures. Use various tools to understand and apply geometric transformations to geometric figures. Apply the Pythagorean Theorem and its converse to solve mathematical problems in two and three dimensions. (CC.2.3.8.A.1) (CC.2.3.8.A.2) (CC.2.3.8.A.3)	counterclockwise, parallel lines,congruence, ≅, reading A' as "A prime", similarity, dilations, pre-image, image, rigid transformations, exterior angles, interior angles, alternate interior angles, angle-angle criterion, deductive reasoning, vertical angles, adjacent, supplementary, complementary, corresponding, scale factor, transversal, parallel right triangle, hypotenuse, legs, PythagoreanTheorem, Pythagorean triple cones, cylinders, spheres, radius, volume, height, Pi **Statistics and Probability** bivariate data, scatter plot, linear model, clustering, linear association, non-linear association, outliers, positive association, negative association, categorical data, two-way table, relative frequency
Data and distributions	Construct, analyze, and interpret bivariate data displayed in scatter plots. Identify and use linear models to describe bivariate measurement data. Use frequencies to analyze patterns of association seen in bivariate data. (CC.2.4.8.B.1) (CC.2.4.8.B.2)	