Infinite Geometry supports the teaching of the Common Core State Standards listed below.

High School - Geometry (G)

Experiment with transformations in the plane

G-CO-1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
G-CO-2	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
G-CO-3	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
G-CO-5	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Understand congruence in terms of rigid motions

G-CO-6	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.

Prove geometric theorems

G-CO-9	Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.
G-CO-10	Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
G-CO-11	Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.

	Make geometric constructions
G-CO-12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.
G-CO-13	Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

	Understand similarity in terms of similarity transformations
G-SRT-2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
G-SRT-3	Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar

	Prove theorems involving similarity
G-SRT-4	Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.
G-SRT-5	Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

	Define trigonometric ratios and solve problems involving right triangles
G-SRT-6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
G-SRT-8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

	Understand and apply theorems about circles
G-C-2	Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.
G-C-3	Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
G-C-4	(+) Construct a tangent line from a point outside a given circle to the circle.

	Find arc lengths and areas of sectors of circles
G-C-5	Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.

	Use coordinates to prove simple geometric theorems algebraically
G-GPE-4	Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, √3) lies on the circle centered at the origin and containing the point (0, 2).
G-GPE-5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
G-GPE-7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

	Explain volume formulas and use them to solve problems
G-GMD-3	Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

High School - Algebra (A)

	Interpret the structure of expressions
A-SSE-1a	Interpret parts of an expression, such as terms, factors, and coefficients.
A-SSE-1b	Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.
A-SSE-2	Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 – y^4$ as $(x^2)^2 – (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 – y^2)(x^2 + y^2)$.

	Perform arithmetic operations on polynomials
A-APR-1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

	Create equations that describe numbers or relationships
A-CED-1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

A-CED-2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
A-CED-3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.
	Understand solving equations as a process of reasoning and explain the reasoning
A-REI-1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
	Solve equations and inequalities in one variable
A-REI-3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
	Solve systems of equations
A-REI-6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

High School - Functions (F)

	Analyze functions using different representations
F-IF-7a	Graph linear and quadratic functions and show intercepts, maxima, and minima.
	Build a function that models a relationship between two quantities
F-BF-1a	Determine an explicit expression, a recursive process, or steps for calculation from a context.
	Construct and compare linear, quadratic, and exponential models and solve problems
F-LE-2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

High School - Number and Quantity (N)

	Reason quantitatively and use units to solve problems.
N-Q-1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
N-Q-2	Define appropriate quantities for the purpose of descriptive modeling.

High School - Statistics & Probability (S)

	Understand independence and conditional probability and use them to interpret data
S-CP-1	Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").
S-CP-2	Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
S-CP-3	Understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.
S-CP-5	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.
	Use the rules of probability to compute probabilities of compound events in a uniform probability model
S-CP-6	Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.
S-CP-7	Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.
S-CP-8	(+) Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model.
S-CP-9	(+) Use permutations and combinations to compute probabilities of compound events and solve problems.

Grade 8 Standards - Geometry (8.G)

	Understand congruence and similarity using physical models, transparencies, or geometry software.
8.G-1a	Verify experimentally the properties of rotations, reflections, and translations: Lines are taken to lines, and line segments to line segments of the same length.
8.G-1b	Verify experimentally the properties of rotations, reflections, and translations: Angles are taken to angles of the same measure.
8.G-3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.G-5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.
	Understand and apply the Pythagorean Theorem.
8.G-7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
8.G-8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
	Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
8.G-9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Grade 8 Standards - Expressions and Equations (8.EE)

	Analyze and solve linear equations and pairs of simultaneous linear equations.
8.EE-7a	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
8.EE-7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms

8.EE-8b	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.

Standards from *www.corestandards.org/assets/CCSSI_Math%20Standards.pdf*