Bloomfield Prioritized Standards Grades 9-12
Geometry

Algebra
Seeing Structure in Expressions
Interpret the structure of expressions

CC.9-12.A.SSE.1 Interpret expressions that represent a quantity in terms of its context.*

Algebra
Creating Equations*
Create equations that describe numbers or relationships

CC.9-12.A.CED.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R.

Geometry
Congruence

Experiment with transformations in the plane.

CC.9-12.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).

Experiment with transformations in the plane.
CC.9-12.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:
CC.9-12.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:
CC.9-12.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.

Make geometric constructions:
CC.9-12.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.

Geometry
Similarity, Right Triangles, and Trigonometry

Understand similarity in terms of similarity transformations.
CC.9-12.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.

Prove theorems involving similarity.
CC.9-12.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.

Define trigonometric ratios and solve problems involving right triangles.
CC.9-12.G.SRT.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*

Apply trigonometry to general triangles:
CC.9-12.G.SRT.10 (+) Prove the Laws of Sines and Cosines and use them to solve problems.

Apply trigonometry to general triangles:
CC.9-12.G.SRT.11 (+)Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

Geometry
Circles

Understand and apply theorems about circles.
CC.9-12.G.C.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.

Understand and apply theorems about circles.
CC.9-12.G.C.4 (+) Construct a tangent line from a point outside a given circle to the circle.

Geometry
Expressing Geometric Properties with Equations

Use coordinates to prove simple geometric theorems algebraically.
CC.9-12.G.GPE.4 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 $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.

Use coordinates to prove simple geometric theorems algebraically.
CC.9-12.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).

Geometry
Expressing Geometric Properties with Equations

Use coordinates to prove simple geometric theorems algebraically.
CC.9-12.G.GPE.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*

Geometry
Geometric Measurement and Dimension

Explain volume formulas and use them to solve problems:
CC.9-12.G.GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.*

Geometry
Modeling with Geometry

Apply geometric concepts in modeling situations
CC.9-12.G.MG.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*

CT Common Core
CT.9-12.3.C.2.a.(1) Interpret geometric relationships using algebraic equations and inequalities and vice versa.

CT 9-12.3.C.3.a(1) Select appropriate units, scales, degree of precision, and strategies to determine length, angle measure, perimeter, circumference and area of plane geometric figures.