

Southern Cayuga Central School District – Curriculum Map

Subject: Regents Geometry Enriched

School Year: 2021-2022

This course covers the same material as Common Core Regents Geometry but challenges students to deepen their conceptual understanding. All assessments will be more rigorous than those in CC Geometry and many fundamental algebraic concepts will also be included in the course.

Title or Topics w/ NYS Standards	Essential Questions & Vocabulary	Content Skills (Activities to cover Essential Questions)	Major Assessments (Tests, Project, etc.)	Time Frame
Slope and writing equations of lines	EQ: What problem-solving methods do you most enjoy? Slope, rise, run, y-intercept, parallel, line, horizontal, vertical, algebraic method, graphical method, simplify, reduced form, negative reciprocal slope, coordinate proof, prove, justify, explain, slope-intercept form, point-slope form	Calculate the slope between two given points both algebraically and graphically, write the equation of a line in point-slope form and slope-intercept form given various scenarios, write the equations of horizontal and vertical lines, use slope to determine whether two lines are parallel/perpendicular. Write equations of parallel/perpendicular lines. Prove a triangle is right based upon slope.	Quiz	2 weeks
Angles	Acute, right, obtuse, straight, complementary, supplementary, vertical, angle bisector, perpendicular	Given diagrams be able to infer angle measure, based on straight and vertical angles, along with perpendicular lines and angle bisectors. Then solve word problems given complementary/supplementary angles.	Quiz	4 days
Factoring	Greatest common factor, trinomial, binomial, perfect square	Be able to factor polynomials – greatest common factors, trinomials, difference of perfect squares	Take-Home Quiz	1 day
Parallel lines and transversals	EQ: Why is explanation important? Parallel lines, transversal, interior and exterior angles, same-side interior angles, corresponding	Use appropriate vocabulary to identify angles in parallel line diagrams, state angle measures given a diagram and appropriate information.	Quiz	1 week

	angles, prove, justify, explain			
Triangles	EQ: What do effective problem-solvers do when they get stuck? Triangle, interior/exterior angles, interior angle sum of 180° , acute, right, obtuse, isosceles, equilateral, scalene, base angles	Classify triangles by sides (scalene, isosceles, and equilateral) and angles (acute, right, and obtuse). Solve for side/angle measure given a diagram and various information. Use the Exterior Angle Theorem to setup and solve algebraic equations. Use the Pythagorean Theorem to find the length of side in a right triangle.	Quiz	4 days
Working with coordinate grids	Distance, length, Pythagorean Theorem, legs, hypotenuse, midpoint formula, graphical/algebraic methods, partitioning line segments, simplest radical form, perimeter, area	Find the length (in simplest radical form) of line segments given coordinates, find the length of a missing side of a right triangle (given two sides), find the coordinates of the midpoint of a line segment, partition a line segment given a ratio, find the perimeter and area (in simplest radical form) of a polygon, classify triangles by side length (isosceles, equilateral, scalene)	Quiz	4 days
			<i>Above topics assessed on marking period 1 exam</i>	
Transformations	Reflection, rotation, translation, preserve, orientation, perpendicular bisector, mapping, pre-image, image, composition, isometric	Graph polygons and perform various transformations. Identify a specific mapping or mappings that carry the pre-image onto the image.	Quiz	1 week
Rigid Motions and Congruence	Rigid motion, preserve, congruence, reflection, rotation, translation, isometric	Use sequences of rigid motions to prove congruence on and off grids. This involves mapping.	Quiz	1 week
Factoring	Trinomial, grouping strategy	Factor trinomials where the leading coefficient is not 1 or -1.	Take-Home Quiz	1 day
Euclidean Triangle Proofs and Congruence	Triangle congruence shortcuts: SSS, SAS, ASA, AAS, HL, CPCTC, two-column proof	Introduction to the concept of proof via triangle congruency. Complete proofs usually the two-column method and using appropriate vocabulary	Quiz each week	2 weeks

Isosceles Triangle Proofs	Isosceles triangle, proof	Prove triangles and corresponding parts congruence using the two-column method. Diagrams are complicated.	Quiz	2 days
Zero Product Law	Factor, product, zero	Use factoring methods to solve polynomial/quadratic equations.	Take-Home Quiz	1 day
			Above topics assessed on marking period 2 exam	
Equations of circles	Standard form, radius, diameter, center, complete the square, factor	Write equations of circles in standard form, given key information. Convert an equation to standard form by completing the square.	Quiz	4 days
Similarity	Ratio, proportion, similar polygons, triangle similarity shortcuts: AA, SSS, SAS, side-splitter, geometric mean, altitude rule, leg rule	Solve numeric and algebraic problems involving ratio and proportion. Prove triangles similar using a similarity shortcut: AA, SSS, or SAS. Solve geometric mean problems using the altitude or leg rule.	Quiz each week	2 weeks
Quadratic Formula	Quadratic, radical, simplify	Use the quadratic formula to solve quadratic equations.	Take-Home Quiz	1 day
Trigonometry	EQ: Why are side and angle relationships important when modeling situations? Sine, cosine, tangent, side ratios, SOHCAHTOA, leg, hypotenuse, complementary angles, angle of elevation/depression	State trigonometric ratios, find side/angle measures of right triangles, apply the complementary angle relationship between sine and cosine for acute angles in right triangles, solve application problems using trigonometry	Quiz each week	2 weeks
			Above topics assessed on marking period 3 exam (midterm exam)	
Quadrilaterals	Parallelogram, rectangle, rhombus, square, diagonals, opposite angles, consecutive angles, diagonals, coordinate proof	Solve numeric and algebraic problems involving quadrilaterals, prove properties about quadrilaterals with special attention paid to parallelograms, complete coordinate proofs involving quadrilateral properties	Quiz each week	3 weeks

Exponents	Simplify, product, division, expressions, zero exponent	Simplify exponential expressions involving multiplication, division, and power rules	Take-Home Quiz	1 day
Circles	Diameter, radius, central angle, inscribed angle, tangent, secant, chord, arc, major/minor arc, area, circumference, interior/exterior angles, arc length, sector area	Solve numeric and algebraic problems involving angles in circles, explore tangent/secant/chord properties, find area, circumference, arc length, and sector area.	Quiz each week	2 weeks
			<i>Above topics assessed on marking period 4 exam</i>	
Circles		Finish unit	Quiz each week	2 weeks
Exponent	Negative exponents	Continuation of solving techniques from the previous take-home quiz, with the concept of negative exponents included	Take-Home Quiz	1 day
Dilations	Proportion, scale factor, center of dilation	Dilate figures given a scale factor, state the scale factor given two similar figures, state equations of dilated lines	Quiz	3 days
Volume and Density	EQ: Why is modeling important? Prism, pyramid, cone, sphere, density, rotational volume, cross section	Calculate the volume of rectangular prisms, pyramids, cones, and spheres. Complete modeling problems involving volume, density, and unit conversion. Identify types of cross section and rotational volume.	Quiz each week	2 weeks
Constructions	Copy angles, perpendicular bisector, angle bisector, segment, midpoint, parallel lines, inscribed squares, hexagons, and equilateral triangles	Perform constructions with a compass and straightedge.	Take-Home Quiz	5 days
			<i>Above topics assessed on marking period 5 exam</i>	
Regents Exam Review		Mini-lessons and complete four past Regents exam		2 Weeks