

Aviation High School 2025-2026

Geometry Syllabus

MGN11/MGN11QQF

September 04, 2025 to June 26, 2026

January Regents Exam Testing Dates – January 20-23, 2026

June Regents Exam Testing Dates - June 17-25, 2026

Teacher Information

Teacher	Email
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General Information

Course Description

Geometry is intended to be the second course in mathematics for high school students. During high school, students begin to formalize their geometry experiences from elementary and middle school, using more precise definitions to establish the validity of geometric conjectures through deduction, proof, or mathematical arguments. Students will develop an understanding of the attributes and relationships of two- and three-dimensional geometric shapes that can be applied in diverse contexts. Topics covered in the course include but are not limited to: polygon (triangle, quadrilateral, etc) properties, congruence, informal and formal proofs, coordinate geometry, similarity, pythagorean theorem, right triangle trigonometry, transformations and rigid motions, circles, solid geometry (surface area and volume) and constructions.

Course Credits

Classes are 45-minutes daily for two graduation credits.

Expectations and Goals

Students are expected to arrive to class prepared and on time, actively participate during independent practice and in small group and whole class discussions, complete and submit assignments in a timely manner, prepare and study for formative and summative assessments, utilize technological tools as directed by their teacher (that includes scientific/graphing calculators and geometry software), and adhere to academic integrity by avoiding cheating and plagiarism. The goal is for students to apply and build on the skills they acquired in middle school math and high school Algebra to master geometric concepts, strengthen their ability to defend their ideas through informal and formal proofs, and apply geometric properties in real-world situations.

Course Information and Materials

Course Units and Objectives (Aligned to NYSED Learning Standards)

Geometry course units and their corresponding objectives are outlined below:

Topic 1: Foundations of Geometry

Main Objectives:

- Apply basic geometric definitions to higher order problems (*e.g. midpoint, angle bisector, scalene triangle, median*)
- Prove and apply theorems about lines and angles (*e.g. vertical angles are congruent*)
- Make, justify, and apply formal geometric constructions (with the use of a compass and straightedge).

Topic 2: Parallel and Perpendicular Lines

Main Objectives:

- Prove and apply theorems about lines and angles (*e.g. If parallel lines are cut by a transversal, alternate interior angles are congruent*)

Topic 3: Transformations

Main Objectives:

- Determine the location/image of a figure undergoing a transformation/sequence of transformations
- Describe the effects of a transformation on a figure (*e.g. orientation, congruence, similarity*)
- Identify the transformations that maps a figure onto itself or another
- Explain how the criteria for triangle congruence (ASA, SAS, SSS, AAS and HL (Hypotenuse Leg)) follow from the definition of congruence in terms of rigid motions.

Topic 4: Triangle Congruence

Main Objectives:

- Apply the properties of congruent figures to solve problems and justify theorems (*e.g. CPCTC*)
- Discover and apply triangle congruence postulates/theorems (SSS, SAS, ASA, AAS, Hypotenuse Leg) in informal and formal proofs

Topic 5: Relationships in Triangles

Main Objectives:

- Prove and apply theorems about triangles (*e.g. triangle inequality theorem, exterior angle theorem*)

Topic 6: Quadrilaterals and other Polygons

Main Objectives:

- Prove and apply the properties of special quadrilaterals (*e.g. opposite sides of a parallelogram are congruent, diagonals of a rectangle are congruent*)
- Apply the properties of special quadrilaterals in formal proofs

Topic 7: Similarity

Main Objectives:

- Apply the properties of similar figures to solve problems and justify theorems (*e.g. right triangle-altitude theorems*)
- Discover and apply triangle similarity theorems (AA~, SAS~, SSS~) in informal and formal proofs

Topic 8: Right Triangles and Trigonometry

Main Objectives:

- Apply sine, cosine, tangent, the Pythagorean Theorem and properties of special right triangles to solve right triangles in applied problems

Topic 9: Coordinate Geometry

Main Objectives:

- Graphically and analytically explore coordinate geometry formulas (*e.g. slope, midpoint, partition*)
- Apply coordinate geometry formulas to prove geometric theorems and properties

Topic 10: Circles

Main Objectives:

- Write the equation of a circle in center-radius form given different parameters (*e.g. center & diameter, graphically, general form*)
- Identify, describe and apply relationships between the angles and their intercepted arcs of a circle.
- Identify, describe and apply relationships among radii, chords, tangents, and secants of a circle.
- Using proportionality, find one of the following given two others; the central angle, arc length, radius or area of sector

Topic 11: Two and Three-Dimensional Models

Main Objectives:

- Apply volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
- Identify the shapes of plane sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
- Apply concepts of density based on area and volume of geometric figures in modeling situations. (*e.g., persons per square mile, BTUs per cubic foot*).
- Apply solid geometry formulas to solve contextual/real-world problems.

In addition to the course-specific objectives above, this course will adhere to the mathematical practices outlined by the New York State Learning Standards:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Required Materials

All students must come prepared to class every day with at least two blue or black pens, pencils, notebook or loose-leaf binder. Students must have a separate folder dedicated to this class. Notebooks will be checked periodically, so it is important that students be neat and organized.

Attendance Policy

Students must attend class every day. If a student is out for three or more consecutive days, a note must be brought into the student's Counselor on the day they return to class. It is the student's responsibility to make up all missed assignments or exams, even for excused absences.

Aviation High School Grading Policy

- Exams: 60%
- Classwork: 20%
- Homework: 20%

Assessment Policy

All classes will have a minimum of two assessments per marking period. All classes will have a midterm exam in January and a Final exam in June.

The unauthorized use of "AI" software on any assignment is considered plagiarism and will not be accepted. Students must produce their own work.

Make-Up Work Policy

Students may submit work up to 3 days beyond the assignment deadline. Students who were absent will have 3 days to submit missed assignments from the date they return. Any extension on late assignments beyond 3 days is entirely at the teacher's discretion and will need to be arranged by the student.

Google Classroom

Every class has a Google Classroom that is automatically created. Students must be able to access digital platforms and resources such as Google Classroom daily. Students may be required to complete coursework in Google Classroom, and parents can receive progress reports from Google Classroom to monitor their children's academic progress. We encourage parents to register for these updates.

Course Sessions and Period Length

First Day of Classes – Thursday, September 4, 2025

Last Day of Classes – Friday, June 26, 2026

Period Length – 45 minutes

Course Specific Regents Exam Date

NYS Next Generation Geometry Regents: Tuesday, June 23, 2026

Aviation High School Bell Schedule

	Monday - Thursday		Friday	
	Start	End	Start	End
Period 0:	7:15	8:00	7:19	7:59
Coat Collection:	8:00	8:08	7:59	8:07
Period 1:	8:11	8:56	8:10	8:50

Period 2:	8:59	9:44	8:53	9:33
Period 3:	9:47	10:39	9:36	10:19
Period 4:	10:42	11:27	10:22	11:02
Period 5:	11:30	12:15	11:05	11:45
Period 6:	12:18	1:03	11:48	12:28
Period 7:	1:06	1:51	12:31	1:11
Period 8:	1:54	2:39	1:14	1:54
Period 9:	2:42	3:27	1:57	2:37
Period 10:	3:30	4:15	2:40	3:20

Additional Information and Resources

After School Tutoring

Tutoring Schedules will be posted by the teacher onto Google Classroom. Students are expected to bring questions from their homework, classwork, or tests during the tutoring period.

Useful websites:

- New York State Next Generation Math Learning Standards: <https://tinyurl.com/47kmabzh>
- Math Bits Notebook - Helpful Regents Review: <https://mathbitsnotebook.com/>