

Geometry 2024-2025

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Course Description

This course will use the concepts of geometry and the skills of algebra to solve real world problems. To view the standards of this course please visit www.cpalms.org. By the end of the course, the students will have achieved the necessary skills to advance on to Algebra 2.

Curriculum and Pacing guide for class can be found on the following website
<http://yourcharlotteschools.net/departments/curriculum.cfm>

Course Prerequisites

Proficiency in algebra with satisfactory grades in Algebra I

Text and Suggested Supplies

Text supplied by school:

Geometry Nation

(Students will be given a Geometry Nation workbook to be carried at all times. Students are responsible for this to bring to and from class daily. If lost, students may have to purchase an additional workbook.)

Supplies:

- scientific calculator (Ti30xa only)
- Pockets and clips notebook for notes
- Composition book (to be kept in classroom)
- loose-leaf paper
- graph paper, ruler
- pencils

Absences—We will follow the county wide policy on absences- Please refer to the student code of conduct for this information.

When absent students must check the teacher webpage to see what was missed. Most items will be able to be done at home.

Grading

This is a Teacher guided course where students are expected to take notes, complete daily assignments and participate in classroom discussions on the topics of the day. The teacher will provide several examples for the students to follow and provide time for guided practice during class. The students are expected to complete every assignment, read their text, and review their work on a daily basis. The students should be prepared for surprise quizzes given at the teacher's discretion. Online help is also available. Homework consists of worksheets and online assignments from Geometry Nation and Edge XL.

Quarter grades will be weighted as follows:

Grading for each quarter is as follows: Graded Work 50% Assessments 50%

Semester grades will follow the CCPS grading Matrix. This can be found on our Charlotte High School website. The basic breakdown is as follows:

Quarter 1	35%	Quarter 3	35%
Quarter 2	35%	Quarter 4	35%
FSA	30%	FSA	30%

Policies and Procedures

- ∞ Students are expected to follow the school and Classroom Rules. Cell phones and other electronic devices are PROHIBITED (We will only use school chromebooks in class if needed).
- ∞ There will always be an assessment given at the end of each Unit (DFA and teacher made assessment).
- ∞ Handout Assignments are due at the beginning of class and online assignments are due on the given due date and time
- ∞ Extra help is encouraged, students should make arrangements to meet with the teacher as needed either before or after school. (Math club tutoring is available- ask your teacher times and dates)
- ∞ Progress updates are sent home every 4 1/2 weeks, according to a schedule set by the school.
- ∞ Attendance and Make up policies will follow the Code of Students Conduct (pp16-18)

∞ Food and Drink is PROHIBITED (Bottle water only)

Here are the topics for the units covered Courtesy of **Geometry Nation**.

Course Summary

Math Nation's approach to the Geometry course is to build understanding through modeling and multiple representations. As the content spirals, it builds connections from the informal understanding of the concepts that students experienced through representations to a formal utilization of these concepts.

Unit 1 uses transformations and constructions to build an informal understanding of terms and concepts that serve as a foundation for Geometry. The unit gives both students and teachers the opportunity to set classroom norms that can be utilized for the different types of components of Math Nation's curriculum.

Unit 2 begins a student's journey of logical thinking. Students are introduced to conjectures and inductive and deductive reasoning. Connecting proofs to the idea of following steps using common experiences lays the foundation to explore the logical flow of proofs. By the end of the unit, students have completed paragraph proofs, two-column proofs, and flowchart proofs for some of the concepts explored in Unit 1.

Unit 3 focuses on relationships and theorems about lines and angles. Students continue to build their understanding of proofs.

Unit 4 builds on the informal understanding from Unit 1 of why rigid motions result in congruence to a more formal understanding of the definition of congruence in terms of rigid motions. Students also write the more formal descriptions of transformations, including algebraic descriptions that use coordinate notation.

Unit 5 begins with informal discoveries of Side-Side-Side congruence, Side-Angle-Side congruence, Angle-Side-Angle, and Angle-Angle-Side congruence. Students utilize various methods in these discoveries including transformations and constructions. Students build upon the understanding of mapping transformations to connect to the fact that corresponding parts of congruent triangles are congruent (CPCTC). With these concepts informally established through models, students end the unit with the formal justifications of congruent triangles and CPCTC through proofs.

Unit 6 builds on understanding of rigid motions to add dilations to students' formal understanding of transformations. After establishing that a sequence of transformations that includes dilations results in similar figures, students build upon this to understand triangle similarity postulates and theorems. The unit closes with solving problems involving similarity in two-dimensional figures.

Unit 7 explores the relationships within right triangles, further developing understanding of the Pythagorean Theorem from Grade 8.

Students use similar triangles to develop the definitions of sine, cosine, and tangent. Students use the Pythagorean Theorem, sine, cosine, and tangent to make conjectures about the relationships in 30-60-90 and 45-45-90 triangles and then use those relationships to determine measures. The unit ends with applying the relationships learned.

Unit 8 develops understanding of the definitions and properties of parallelograms and trapezoids as students explore theorems and use the definitions, properties, and theorems in proofs.

Unit 9 begins with solving problems involving area and density. Spiraling back to area prepares students for relating the area of cross-sections to volume and finding lateral and surface area of three-dimensional figures. Student understanding of volume begins with relating volume to stacks of cross-sections. By relating volume to stacks of cross-sections, students understand Cavalieri's principle. Students also explore how rotating a two-dimensional figure results in a three-dimensional figure. Volume formulas are utilized to find the volume of three-dimensional figures and apply area formulas to determine the lateral and surface area of three-dimensional figures.

Units 10 and 12 involve relationships in circles. Rather than placing all of the relationships in one unit, the content was separated into a unit that focuses on relationships that involve arcs and a unit that focuses on lengths of segments. Unit 11 builds on Unit 10 and leads into Unit 12 by exploring figures inscribed in a circle as well as circumscribed circles. The intentional spiraling of the content is meant to help students understand the relationships between arcs and inscribed

figures (Unit 10 to Unit 11) and introduce segments such as tangent lines (Unit 11 to Unit 12). Other relationships and theorems related to triangles are explored in Unit 11.

Unit 13 is a culminating unit where students use coordinate geometry to apply relationships learned throughout the course spiraled through the lens of coordinate geometry. As summative assessments can be difficult for students, this unit takes the opportunity to use the spaced review to students' advantage.