Spring 2013 Curriculum Plan

*Geometry*

|  |
| --- |
| **Unit 1**15 Days |
| * **Points, Lines, and Planes/Segments**
* **Angles/Postulates and Theorems About Points, Lines, and Planes (Lab 1)**
* **More Theorems About Lines and Planes/Identifying Pairs of Angles (Lab 2)**
* **Using Inductive Reasoning/Using Formulas in Geometry**
* **Finding Length: Distance Formula/Using Conditional Statements**
* Finding Midpoints/Proving Lines Parallel (Lab 4)
* Introduction to Triangles/Disproving Conjectures with Counterexamples
* Introduction to Polygons
* Finding Slopes and Equations of Lines/More Conditional Statements
* Triangle Theorems/Introduction to Quadrilaterals
* Interpreting Truth Tables
 | North Carolina Mathematics Common Core High School GeometryCongruenceCO.A.1, CO.A.2, CO.C.8, CO.C.9, CO.C.10, CO.D.12Expressing Geometric Properties with EquationsGPE.A.2, GPE.A.3, GPE.B.4, GPE.B.5, GPE.B.6, GPE.B.7 |
| **Unit 2**12 Days |
| * Laws of Detachment and Syllogism/Finding Areas of Quadrilaterals
* Introduction to Circles/Algebraic Proofs
* Triangle Congruence: SSS/Central Angles and Arc Measure
* Two-Column Proofs/Triangle Congruence: SAS (Lab 5)
* Using the Pythagorean Theorem/Triangle Congruence: ASA and AAS
* Flowchart and Paragraph Proofs
* Altitudes and Medians of Triangles/Converse of the Pythagorean Theorem
* Properties of Parallelograms/Finding Arc Lengths and Areas of Sectors
* Right Triangle Congruence Theorems/Writing Equations of Parallel and Perpendicular Lines
* Perpendicular and Angle Bisectors of Triangles/Inequalities in a Triangles (Lab 6)
* Finding Perimeters and Areas of Composite Figures
 | North Carolina Mathematics Common Core High School GeometryCongruenceCO.B.6, CO.B.7, CO.B.8, CO.C.11Similarity, Right Triangles, & TrigonometrySRT. C.8CirclesC.B.5Expressing Geometric Properties with EquationsGPE.A.1 |
| **Unit 3**12 Days |
| * Ratios, Proportions, and Similarity/Finding Distance from a Point to a Line (Lab 7)
* Chords, Secants, and Tangents/Applying Similarity/Introduction to Coordinate Proofs
* Triangle Similarity: AA, SSS, SAS
* Circles and Inscribed Angles/Indirect Proofs
* Introduction to Solids/Geometric Mean
* Properties of Isosceles and Equilateral Triangles/Properties of Rectangles, Rhombuses, and Squares
* 45o-45o-90o Right Triangles/Representing Solids
* Triangle Midsegment Theorem/30o-60o-90o Right Triangles
* Finding Perimeter and Area with Coordinates
* Tangents and Circles (1) (Lab 8)
* Finding Surface Areas and Volumes of Prisms/Proportionality Theorems
 | North Carolina Mathematics Common Core High School GeometryCongruenceCO.D.13Similarity, Right Triangles, & TrigonometrySRT.A.2, SRT.A.3, SRT.B.4, SRT.B.5, SRT.C.6CirclesC.A.1, C.A.2, C.A.3, C.A.4Modeling with GeometryMG.A.1 |
| **Unit 4**12 Days |
| * Determining If a Quadrilateral is a Parallelogram/Finding Surface Areas and Volumes of Cylinders
* Introduction to Vectors/Angles Interior to Circles
* Distinguishing Types of Parallelograms/Finding Perimeters and Areas of Regular Polygons (Lab 9)
* Introduction to Transformations/Introduction to Trigonometric Ratios
* Properties of Trapezoids and Kites/Finding Surface Areas and Volumes of Pyramids
* Translations/Tangents and Circles (2)
* Applying Trigonometry: Angles of Elevation and Depression
* Reflections/Writing the Equation of a Circle
* Symmetry/Finding Surface Areas and Volumes of Cones
* Rotations/Angles Exterior to Circles (Lab 10)
* Finding Surface Areas and Volumes of Spheres
 | North Carolina Mathematics Common Core High School GeometryCongruenceCO.A.3, CO.A.4, CO.A.5Similarity, Right Triangles, & TrigonometrySRT.C.6, SRT.C.7, SRT.C.8 |
| **Unit 5**12 Days |
| * Graphing and Solving Linear Systems/More Applications of Trigonometry
* Vector Addition/Dilations
* Cross Sections of Solids/Determining Chord Length (Lab 11)
* Area Ratios of Similar Figures/Graphing and Solving Linear Inequalities
* Vector Decomposition/Composite Transformations
* Introduction to Trigonometric Identities/Quadrilaterals on the Coordinate Plane (Lab 12)
* Representing Solids: Orthographic Views/Law of Sines
* Equations of Circles: Translating and Dilating/Effects of Changing Dimensions on Perimeter and Area
* Concentric Circles/Law of Cosines
* Volume Ratios of Similar Solids
* Transformation Matrices
 | North Carolina Mathematics Common Core High School Geometry Similarity, Right Triangles, & TrigonometrySRT.A.1, SRT.D.10, SRT.D.11Geometric Measurement & DimensionGMD.A.1, GMD.A.2, GMD.A.3, GMD.B.4Modeling with GeometryMG.A.2, MG.A.3 |
| **Unit 6**12 Days |
| * Determining Lengths of Segments Intersecting Circles/Dilations in the Coordinate Plane (Lab 13)
* Frustums of Cones and Pyramids/Relating Arc Lengths and Chords
* Rotations and Reflections in the Coordinate Plane/Circumscribed and Inscribed Figures
* Maximizing Area/Introduction to Coordinate Space (Lab 14)
* Non-Euclidean Geometry/Scale Drawings and Maps
* Finding Distance and Midpoint in Three Dimensions/Finding Areas of Circle Segments
* Symmetry of Solids and Polyhedra
* Solving and Graphing Systems of Inequalities/Finding Surface Areas and Volumes of Composite Solids
* Secant, Cosecant, and Cotangent/Determining Line of Best Fit (Lab 15)
* Finding Areas of Polygons Using Matrices
* Platonic Solids/Topology
 | North Carolina Mathematics Common Core High School GeometrySimilarity, Right Triangles, & TrigonometrySRT.A.1a, SRT.A.1bModeling with GeometryMG.A.2, MG.A.3 |

**Curriculum Plan**

**1. Pick one grade: 9 -12. \_\_\_\_10\_\_\_\_\_**

**2. Pick a course you want to teach. \_\_Geometry\_\_**

**3. State Standards**

**4. Calendars**

a. How many grading periods do you have? \_\_2\_\_

b. How many instructional days per grading period? \_\_41, 47\_\_

c. How many days will be reserved for teacher work days and testing? \_\_12\_\_
**5. Curriculum Mapping**

1. What the students have been expected to learn during their past school years?

\_\_\_The students should have mastered mathematical skills such as solving variable equations, solving radicals, and be familiar with the different terminology. They should also have some experience using calculators.\_\_\_

1. What the students are to learn during the present school year?

\_\_\_Students will learn about points, lines, and planes and theorems that follow. They will investigate angles and become very familiar with using inductive reasoning. They will explore shapes, such as triangles, circles, quadrilaterals, and polygons, their properties, and how to solve for missing information. They will be introduced to basic uses of trigonometry and graphing.\_\_\_

1. What they are going to be required to learn in future grades?

\_\_\_In future grades, students will continue their investigation in trigonometric functions, explore more properties of shapes, and dive deeper into basic algebra skills.\_\_\_

### 6. Year-long/Semester-long Planning

**7. View the example of a mathematics year-long plan.
8. So what do I have to do?
9. What standards are not covered well by your textbook choice? What other materials and resources do you plan on using? ( list a minimum of 5)**

The following standards were not addressed well by this textbook:

CCSS.Math.Content.HSG-SRT.D.9: Derive the formula A=1/2 ab sin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.

CCSS.Math.Content.HSG-GPE.A.2: Derive the equation of a parabola given a focus and directrix.

CCSS.Math.Content.HSG-GPE.A.3: Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.

Not only do these websites help with the missing standards, but they also have awesome additional practice and a ton of game options, which would be great to use to switch up the class from the normal routine. And it can help review for tests!

1. Class Zone
<http://www.classzone.com/cz/books/geometry_2011_na/book_home.htm?state=NC>

2. Math is Fun
<http://www.mathsisfun.com/geometry/index.html>

3. Cool Math
<http://www.coolmath.com/0-geometry-math-art.html>

4. IXL
<http://www.ixl.com/math/geometry>

5. AAA Math
<http://www.aaamath.com/geo.html>

Grading Rubric: 5 points total

One point each for quality work for each of the following:

1. Fully identified state standards and allotted them in a systematic way to each grading period.

2. Realistically allotted time to instruction keeping in mind the instructional days for each quarter. Identified the accurate amount of instructional days for each quarter.

3. Identified the standards students have mastered before your course, during your course, and will need to learn after your course.

4. Identified which standards were not well covered in the course and identified a minimum of 5 additional resources that could be used to supplement the textbook.

Adapted from [IRIS http://iris.peabody.vanderbilt.edu/cnm/chalcycle.htm](file:///C%3A%5CUsers%5CJanna%5CDesktop%5CIRIS%20http%3A%5Ciris.peabody.vanderbilt.edu%5Ccnm%5Cchalcycle.htm)