



Experiential education for young people promoting the natural world  
and the betterment of human character.

## Fall Semester Geometry

To be completed by the Student and their Geometry Teacher

Student's Name: \_\_\_\_\_ Semester attending OA: \_\_\_\_\_

Geometry Teacher's Name: \_\_\_\_\_

Geometry Teacher's Signature: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

Email address: \_\_\_\_\_

**To the teacher:** The topics below are those usually offered in this course at OA. Please check the topics that align with your class and write in any additional topics needed under each unit. Specific examples and assessment questions are also very helpful and may be attached to this form. Thank you so much for your time! This will help us ensure a smooth transition for your student between our schools. *Prerequisite topics include solving and graphing linear equations, manipulating algebraic equations, finding slope, finding distance, finding midpoints, and graphing on the coordinate plane.*

Course Name: \_\_\_\_\_

Textbook used for this course: \_\_\_\_\_ Edition: \_\_\_\_\_

Publisher: \_\_\_\_\_

### Chapter 1: Points, Lines, Planes, and Angles

- Naming Points, Lines and Planes
- Linear Measure and Precision
- Distance and Midpoints within Planes
- Angle Measure using a protractor, constructions
- Angle Relationships - complementary, supplementary, congruent vertical angles
- Polygons
- Application: Linear Perspective Drawings
- Additional Topics Needed:  
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### Chapter 2: Reasoning and Proof

- Proofs and Law - similarities, differences, why we study logic
- Inductive Reasoning, Conjectures, and Counter examples
- Formal Logic - what is it?, truth values, truth tables
- Conditional Statements - "if then" statements, converse, inverse, and contrapositive
- Deductive Reasoning - Law of Detachment, Law of Syllogism
- How to Write Paragraph Proofs
- How to Write Algebraic Proofs
- How to Write Flow Proofs
- Proving Segment Relationships
- Proving Angle Relationships
- Application: Using Logical Reasoning to Evaluate a Common Assumption
- Additional Topics Needed:  
\_\_\_\_\_

Chapter 3: Parallel and Perpendicular Lines

- Parallel Lines and Transversals - constructions, definitions of related angles
  - Angles and Parallel Lines – corresponding angles
  - Slopes of Lines – finding slope from two points, parallel vs. perpendicular
  - Equations of Lines – slope, intercept, standard, point slope
  - Proving Lines Parallel – 5 different ways
  - Perpendiculars and Distance
  - Additional Topics Needed:
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Chapter 4: Triangles

- Classifying triangles - acute, obtuse, right, equilateral, isosceles, scalene
  - Angles of triangles – Angle Sum Theorem
  - Congruent Triangles – naming corresponding angles and segments
  - Proving Congruence - SSS, SAS, ASA, and AAS
  - Isosceles Triangles – properties and applications
  - Triangles and Coordinate Proof
  - Additional Topics Needed:
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Chapter 5: Relationships in Triangles

- Bisectors, Medians, and Altitudes of Triangles – points of concurrency
  - Angle/ Side Relationships within Triangles
  - Exterior Angle Theorem
  - How to Write Indirect Proofs
  - The Triangle Inequality – possible side lengths of a triangle
  - Inequalities Involving Two Triangles – SAS Inequality, SSS Inequality
  - Additional Topics Needed:
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Chapter 6: Proportions and Similarity

- Proportions and Ratios
  - Similar Polygons – proving similarity, scale factor
  - Similar triangles - AA, SSS, and SAS Similarity
  - Parallel Lines and Proportional Parts
  - Parts of Similar Triangles – proportional perimeters, corresponding bisectors, etc.
  - Translations - Reflexive, Symmetric, and Transitive
  - Fractals and Self Similarity - iteration, recursive formulas
  - Additional Topics Needed:
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Please list any additional concepts needed that do not fit into the units above:

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**Please return this form to our office AS SOON AS POSSIBLE. We are unable to guarantee any curriculum needs at OA without completed academic forms.**

**Form may be mailed to: The Outdoor Academy  
43 Hart Road, Pisgah Forest, NC 28768  
Faxed to: (828)884-2788 or Emailed to: admissions@enf.org**