The GIANT Proof Guide to Geometry Honors

**Chapters 1 & 2: Basics of Geometry and Reasoning and Proof**

**Properties:** Addition, Subtraction, Multiplication, Division, Distributive, Substitution, Reflexive, Symmetric, Transitive

**Definitions:** Congruence, Midpoint, Bisector, Perpendicular Lines, Right Angles, Complementary Angles, Supplementary Angles

**Postulates and Theorems:**

Segment Addition Postulate

Angle Addition Postulate

Right Angles Congruence Theorem

Congruent Complements Theorem

Congruent Supplements Theorem

Linear Pair Postulate

Vertical Angles Congruence Theorem

**Chapter 3: Parallel and Perpendicular Lines**

**Postulates and Theorems:**

Corresponding Angles Postulate

Alternate Interior Angles Theorem

Alternate Exterior Angles Theorem

Consecutive Interior Angles Theorem

Corresponding Angles Converse

Alternate Interior Angles Converse

Alternate Exterior Angles Converse

Consecutive Interior Angles Converse

Perpendicular Transversal Theorem

Lines Perpendicular to a Transversal

Slopes of Parallel Lines

Slopes of Perpendicular Lines

**Chapter 4: Congruent Triangles**

**Definitions:** Right Triangle, Scalene Triangle, Isosceles Triangle, Equilateral Triangle

**Postulates and Theorems:**

Triangle Sum Theorem

Exterior Angle Theorem

Third Angles Theorem

SSS Congruence Theorem

SAS Congruence Theorem

AAS Congruence Theorem

AAS Congruence Theorem

HL Congruence Theorem

CPCTC

Base Angles Theorem

Converse of the Base Angles Theorem

**Chapter 5: Relationships within Triangles**

**Chapter 6: Similar Triangles**

|  |  |
| --- | --- |
| **Given or Statement…** | **Might Lead To…** |
| Bisector | Congruent Segments OR  Congruent <s |
| Isosceles Triangle | Legs are …and then  Base Angles are |
| Midpoint | Congruent Segments |
| Parallel Lines | Corresponding <s OR  Alternate Interior <s OR  Alternate Exterior <s OR  Consecutive Interior <s |
| Perpendicular Lines | Right Angles |
| Right Angles | Right Angles are OR  Right Triangles |
| Triangle | Triangles by SSS, SAS, ASA, AAS, or HL …looking for parts? CPCTC! OR  Triangle <s Sum of 180 |