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 ORCongruent <s |
| Isosceles Triangle | Legs are $≅$ …and thenBase Angles are $≅$ |
| Midpoint | Congruent Segments |
| Parallel Lines | Corresponding <s ORAlternate Interior <s ORAlternate Exterior <s ORConsecutive Interior <s |
| Perpendicular Lines | Right Angles |
| Right Angles | Right Angles are $≅$ ORRight Triangles |
| Triangle | $≅$ Triangles by SSS, SAS, ASA, AAS, or HL …looking for $≅$ parts? CPCTC! ORTriangle <s Sum of 180$°$ |