**CCG Unit I ( end of Oct --- through 3rd week of Nov)**

**Unit I Objectives as they relate to Congruence for Common Core Geometry**

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|  | |  |  | | --- | --- | |  | ***OBJECTIVE - G.CO.6***  *Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.*  ***OBJECTIVE - G.CO.7***   * *Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.*   ***OBJECTIVE - G.CO.8***  *Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motion.*  ***OBJECTIVE - G.CO.9***  *Prove theorems about lines and angles.  Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment’s endpoints.*  ***OBJECTIVE - G.CO.10***  *Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*  ***Prior Knowledge:*** *Given a pre-image and an image determine the composite transformations that have taken place between them. This is a strong connection to congruence. Congruence is defined as a set of transformations that map one figure onto another. This is a VERY NEW concept in Common Core Geometry!! This is established through C.CO.6 and 7. We will jump to G.CO.9 about angles; vertical angles, pairs of angles, and angles formed by parallel lines. These relationships will be needed to do much of the proof that will follow in G.CO.8 and ultimately G.CO.10 when we prove congruence between triangles.* | |  | |

(About 2.5 weeks)

Use of **G.CO.9 WORKSHEET #1** (Angle Relationships)  
Use of **G.CO.9 WORKSHEET #2** (Angle Relationships)

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|  | |  |  | | --- | --- | |  | In this week we will continue to establish the angle relationships found with a transversal and parallel lines. This relationship will come as an angle is translated along one of its rays, forming congruent corresponding angles. These relationships unlock many problems in the future. We will also begin to work with congruence - this will come easily because of our previous work with isometric transformations. | |  | |

Use of **G.CO.6 WORKSHEET #1, #2** (Congruence)  
Use of **G.CO.7 WORKSHEET #1** (Congruent Triangles)  
Use of **G.CO.8 ACTIVITY #1** (Congruence Criteria) Use Congruent Triangle Lab – From Illuminations- EXCELLENT MP#4

Use of **G.CO.8 WORKSHEET #1** (Identifying Congruence- the basics )  
Use of **G.CO.8 WORKSHEET #2** (Prove Congruence SIMPLE)

Use of **G.CO.8 WORKSHEET #3** (Prove Using Parallel Lines)  
Use of **G.CO.8 WORKSHEET #4** (CPCTC)

Unit 1 and the Math Practice standard of Mathematical Modeling MP 4

**Essential Elements of Proof lab – Deductive Reasoning**- Can students identify the essential elements of a proof? Can they articulate this to others? Use Chalk Talk to establish prior knowledge. Then follow with Essential Elements of proof lab. Computer Lab dependent! This lab leads students by giving them the statements and they must decide the order of the reasons. They are making use of deductive reasoning as it applies to proof. We are following a 2 col proof model to start. As students become more familiar with geometric theorems and properties they will ultimately do the proofs on their own.

**More complicated problems lead us to G.CO.10**

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|  | |  |  | | --- | --- | |  | Proof continues but focused on relationships found in a triangle such as: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; We prove these relationships then apply them. | |  | |

Use of **G.CO.10 WORKSHEET #1** (Triangle Relationships)  
Use **of Regents Prep Geometry regents level problems and Exam Gen problems**. Triangle relationships Todd has this.

The notes for G.CO.10 show a number of ways to prove these items – look through the notes carefully. They introduce the new transformational methods as well as the traditional ones. Appropriate to use 2005 materials at this point.

End with UNIT 1 exam by early December

**This is new material and new standards- working on getting the timing down. NEXT YEAR – push faster through constructions and transformations. We had 8 snow days in 2014-15 and numerous delays. Push to cover more before Dec 1 2015**