Topic C

Congruence and Angle Relationships

8.G.A.2, 8.G.A.5

Focus Standards:	8.G.A.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
	8.G.A.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*
Instructional Days:	4	
Lesson 11:	Definition of Congruence and Some Basic Properties (S)[1]	
Lesson 12:	Angles Associated with Parallel Lines (E)	
Lesson 13:	Angle Sum of a Triangle (E)	
Lesson 14:	More on the Angles of a Triangle (S)	

Topic C finishes the work of **8.G.A.2** by introducing the concept of congruence as mapping one figure onto another using a sequence of rigid motions. Lesson 11 defines congruence in terms of a sequence of the basic rigid motions (i.e., translations, reflections, and rotations). Students learn the fundamental assumptions that are made about the basic rigid motions that serve as the basis of all geometric investigations.

The concept of congruence and basic rigid motions are used to determine which angles of parallel lines are equal in measure. In Lesson 12, students show why corresponding angles are congruent using translation and why alternate interior angles are congruent using rotation. In Lessons 13 and 14, the knowledge of rigid motions and angle relationships is put to use to develop informal arguments to show that the sum of the degrees of interior angles of a triangle is 180°. Students are presented with three such arguments as the importance of the theorem justifies the multiple perspectives. Students also take note of a related fact about the exterior angles of triangles.

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[1] Lesson Structure Key: **P**-Problem Set Lesson, **M**-Modeling Cycle Lesson, **E**-Exploration Lesson, **S**-Socratic Lesson