Unit Number and Name	Unit 4 Congruence		
Unit Question	What does it mean for geometric figures to be congruent?		
Essential Questions:	1. How do we know when two geometric figures are congruent? 2. How do we prove a statement is true? 3. How do different properties define a quadrilateral? What relationships form different classifications within the class of quadrilaterals?		
Initial Task--1 day	Students will engage in various problem solving strategies in this Same Size, Same Shape Task.		
Big Ideas	**Objectives Reached**	**EQs Addressed**	**Evidence of Understandings**
Big Idea 1: Polygons are comprised of triangles.	G.2D.1.3 G.2D.1.6	EQ 2	● Explore and prove relationships about interior and exterior angles of polygons 　○ Apply knowledge about triangles to generate and test conjectures polygons 　　■ Use diagonals to partition figures into triangles to determine the the sum of the interior angles of a polygon 　○ Find the value of missing interior and exterior angles in a polygon ● Explore and prove relationships about polygons 　○ Find the area and perimeter of polygons ● Explore and prove relationships of regular polygons

			○ Apply knowledge about triangles to generate and test conjectures about regular polygons
			○ Find the value of missing interior and exterior angles in a regular polygon
			○ Find the area and perimeter of a regular polygon
		Big Idea 1 should take about 4-5 fifty minute class periods.	**Core Resource 1**

Big Idea 2: Congruent polygons are defined by their congruent angles and sides.	G.2D.1.7	EQ1
		EQ 2
			● Describe qualities that make two polygons congruent or incongruent
			  ○ Identify **corresponding parts** (angles and sides) of polygons by annotating
			    ■ Use notation to signify congruence
			  ○ Use examples and non-examples to justify that corresponding parts of congruent polygons congruent
			  ○ Explore whether equal perimeters or areas mean figures are congruent (or vice versa: if figures are congruent then decide if their perimeters or areas are equal)

		Big Idea 2 should take about 4-5 fifty minute class periods.	**Big Idea 2 Core Resource**
Big Idea 3: Congruent	G.2D.1.8	EQ1	● Prove two triangles are congruent

| corresponding angles and sides are used to prove triangles are congruent. | | | | ○ Identify corresponding congruent parts and apply the criteria of SSS, SAS, ASA, or AAS

○ Prove two right triangles are congruent when corresponding Hypotenuse-Leg (HL) are congruent

● Justify the minimum requirements that show two triangles are congruent
○ Make conjectures about the minimum corresponding parts of the triangle needed to construct a congruent triangle

 ■ Experiment with constructions to support these claims

 ■ Give examples, non examples, or counterexamples about these claims

○ Justify that when all corresponding sides of two triangles are congruent **(SSS)** there is sufficient evidence to show that these two triangles are congruent

○ Justify that when two corresponding sides and the included angle are congruent **(SAS)** there is sufficient evidence to show that these two triangles are congruent

 ■ Justify why the angle <u>has to be </u>the included angle of the corresponding sides (SSA does not work)

 ■ Establish the the minimum criteria necessary to prove two right triangles are congruent using the hypotenuse and a leg **(HL)**

○ Justify that when two corresponding angles and the included side of two triangles are congruent **(ASA)** there is sufficient evidence to show that these two triangles are congruent |

			○ Justify that when two corresponding angles and the non-included side of two triangles are congruent **(AAS)** there is sufficient evidence to show that these two triangles are congruent
		Big Idea should take about 4-5 fifty minute class periods.	**Big Idea 3 Core Resource**
Formative Assessment		After big ideas 1, 2, and 3 the formative assessment should take about one fifty minute class period.	**Analyzing Conditions for Congruency**
Big idea 4: Quadrilaterals can be classified by their sides, diagonals and angle measures.	G.2D.1.4	EQ3	● Distinguish trapezoids, parallelograms, rectangles, kites, rhombuses, and squares using properties of their sides and angles 　○ Identify and use properties that result in quadrilaterals being part of the same "family" 　○ Examples: rectangle, square, and rhombus are all parallelograms ● Explore and prove relationships about interior and exterior angles of quadrilaterals 　○ Justify that interior angles of a quadrilateral always add up to 360° using examples and non-examples ● Explore and prove relationships about angles and sides of a parallelogram 　○ Identify and justify congruent angles and sides of a parallelogram 　○ Prove opposite sides and angles of a parallelogram are congruent 　　■ Apply properties of parallel lines cut by a transversal

			○ Prove same side/consecutive interior angles of a parallelogram are supplementary ○ Prove a given figure is a square, rectangle, or rhombus ■ Apply properties of parallelograms, parallel lines, and triangle congruence criteria ○ Find the measure of a missing value or measurements ● Investigate the relationship between the diagonals of a quadrilateral and its other characteristics ○ Prove diagonals of parallelograms bisect each other ■ Prove the converse statement (if diagonals bisect each other then it is a parallelogram) ○ Prove diagonals of rectangles are congruent ■ Investigate diagonals of an isosceles trapezoid and use them show the converse statement is false (if diagonals are congruent, then it is a rectangle) ○ Prove diagonals of a rhombus perpendicularly bisect one another ■ Demonstrate perpendicular diagonals do not necessarily bisect one another (ex: kites) ○ Find the measure of the missing length of a diagonal
		Big Idea 4 should take about 3-4 fifty minute class periods.	**Big Idea 4 Core Resource**
Reengagement		Take a day or two to revisit concepts students struggled	

		with in the formative assessments.	
Summative Assessment			[Unit 4 Summative Assessment](#)
Essential Terms:	Polygon Regular Polygon Interior Angle Sum Exterior Angle Sum Corresponding Parts Congruence Perimeter Area SSS- (Side, Side, Side) SAS- (Side, Angle, Side) ASA- (Angle, Side, Angle) AAS- (Angle, Angle, Side) Quadrilateral Kite Rhombus Square Parallelogram Trapezoid Parallel Lines Transversal Diagonal Perpendicular Bisector		