

8th Grade UNIT 6 OVERVIEW: Geometric Properties

Unit Outcomes At the end of this unit, your student should be able to:	Key Vocabulary Terms to deepen the student's understanding	
<ul style="list-style-type: none"> ✓ Investigate and make conjectures about the special angles formed when parallel lines are cut by a transversal ✓ Apply the properties of parallel lines cut by a transversal ✓ Investigate and understand the triangle sum theorem ✓ Understand and apply the triangle exterior angle theorem ✓ Apply the triangle sum theorem and relationships between the exterior angles of the triangle and the two remote angles ✓ Identify similar figures and name corresponding angles and sides ✓ Understand and apply the angle-angle similarity postulate and apply the properties of similarity and indirect measurement to setup and solve proportions to find unknown side lengths of polygons 	<ul style="list-style-type: none"> ✓ Adjacent Angles ✓ Alternate Exterior Angles ✓ Alternate Interior Angles ✓ Angle-Angle Criterion ✓ Angle Sum Theorem ✓ Angle-Angle Similarity Postulate ✓ Complimentary Angles ✓ Congruent \cong ✓ Congruent Angles ✓ Corresponding Angles ✓ Corresponding Sides ✓ Deductive Reasoning ✓ Exterior angle ✓ Interior angle 	<ul style="list-style-type: none"> ✓ Nonadjacent Angles ✓ Parallel lines ✓ Remote Interior Angles ✓ Same Side Interior Angles ✓ Scale Factor ✓ Similar Polygons ~ ✓ Similarity ✓ Supplementary Angles ✓ Transversal ✓ Triangle ✓ Triangle Exterior Angle Theorem ✓ Triangle Sum Theorem ✓ Vertical Angles
Key Standards Addressed Connections to Common Core/NC Essential Standards	Where This Unit Fits Connections to prior and future learning	
<p>8.G.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. <i>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.</i></p>	<p>Coming into this unit, students should have a strong foundation in:</p> <ul style="list-style-type: none"> ✓ Classifying and finding the measurement of angles using the properties of special angles ✓ Identifying and using angle relationships to find measures of missing angles ✓ Writing and solving multi-step equations to find missing angles ✓ Naming triangles based on sides and/or angles <p>This unit builds to the following future skills and concepts:</p> <ul style="list-style-type: none"> ✓ Applying geometric concepts to model and solve real-world scenarios (Math II) 	

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Additional Resources Materials to support understanding and enrichment	“Learning Checks” Questions Parents Can Use to Assess Understanding
<ul style="list-style-type: none"> ✓ Teaching videos made by Wake County teachers ✓ WCPSS YouTube Channel – Math Playlist ✓ Transversal Lines Overview ✓ Transversal Line Video ✓ Angle Sum Theorem Overview ✓ Angle Sum Theorem Practice ✓ Angle-Angle Similarity Postulate Video ✓ Angle-Angle Similarity Postulate Practice ✓ Exterior Angle Theorem Overview ✓ Exterior Angle Theorem Practice 	<ul style="list-style-type: none"> ✓ How are angle relationships of parallel lines cut by a transversal important when planning and constructing roadways and buildings? ✓ How would parallel lines being cut by a transversal apply when an Architect is designing a skyscraper? ✓ How do architects use geometric properties including the angle sum theorem in their designs? ✓ How would you use the exterior angles of a triangle in the construction of a beach chair? ✓ What are the two defining properties of similar figures? ✓ Where would you use similar figures outside of the classroom? ✓ How can you tell when two triangles are similar? ✓ How does one apply the properties of similar figures to find unknown side lengths?

* **Please note**, the unit guides are a work in progress. If you have feedback or suggestions on improvement, please feel free to contact wakemiddle@wcpss.net.