

Geometry CP Unit 5: Right Triangles and Trigonometry

Unit #:	APSDO-00018036	Duration:	4.0 Week(s)	Date(s):	
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Team:
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Grades:
 9, 10

Subjects:
 Mathematics

Unit Focus

In this unit, students will solve right triangles using the Pythagorean Theorem and trigonometric ratios. Students will also use the converse of the Pythagorean Theorem to make assumptions about the angles in a triangle. In addition, they will expand their knowledge of side lengths of triangles using the Triangle Inequality Theorem. Summative assessments may include projects, labs, and tests. Primary instructional materials include Glencoe Geometry Integration, Application, and Connections, 1998.

Stage 1: Desired Results - Key Understandings

Established Goals	Transfer	
<p>Common Core <i>Mathematics: 9</i></p> <ul style="list-style-type: none"> • Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. <i>CCSS.MATH.CONTENT.HSG.SRT.C.6</i> • Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. <i>CCSS.MATH.CONTENT.HSG.SRT.C.8</i> • Attend to precision. <i>CCSS.MATH.MP.6</i> • Look for and express regularity in 	<p>T1 (T50) Based on an understanding of any problem, initiate a plan, execute it and evaluate the reasonableness of the solution.</p> <p>T2 (T53) Articulate how mathematical concepts relate to one another in the context of a problem or in the theoretical sense.</p> <p>T3 (T51) Examine alternate methods to accurately and efficiently solve problems.</p> <p>T4 (T52) Use appropriate tools strategically to deepen understanding of mathematical concepts.</p> <p>T5 (T43) Infer the relationship between objects based on their shape, location, and measurements.</p> <p>T6 (T44) Apply appropriate theorems and formulas to determine the unknown.</p>	
	Meaning	
	Understandings	Essential Questions

<p>repeated reasoning. <i>CCSS.MATH.MP.8</i></p> <ul style="list-style-type: none"> • Make sense of problems and persevere in solving them. <i>CCSS.MATH.MP.1</i> • Reason abstractly and quantitatively. <i>CCSS.MATH.MP.2</i> 	<p>U1 (U501) Effective problem solvers identify relevant information.</p> <p>U2 (U510) Every problem is a member of a category of problems that has a similar structure and set of characteristics.</p> <p>U3 (U550) Attention to detail, such as specifying units of measure and labeling, leads to clarity in expressing mathematical information.</p> <p>U4 (U561) Recognition of patterns and structures fosters efficiency in solving problems.</p> <p>U5 (U406) Every geometric theorem or formula is an established relationship that can be applied to a specific set of figures.</p> <p>U6 (U408) Trigonometry is based on the relationship between sides and the angles in any triangle.</p>	<p>Q1 (Q501) What do I picture/visualize when I look at this problem?</p> <p>Q2 (Q512) What information is needed and how do I use it to solve a problem?</p> <p>Q3 (Q551) How precise do my quantities need to be for my calculations to be accurate?</p> <p>Q4 (Q552) Does my solution make sense?</p> <p>Q5 (Q572) How does understanding the pattern/structure help me solve the problem?</p> <p>Q6 (Q405) How do I use measurements about the shape to calculate additional information about it?</p> <p>Q7 (Q406) What is the theorem/formula necessary to solve this problem? (Gr. 5-12)</p> <p>Q8 (Q409) How do some values in a triangle determine others?</p>
Acquisition of Knowledge and Skill		
Knowledge		Skills
		<p>S1</p> <p>Apply the altitude on the hypotenuse theorem incorporating the geometric mean</p> <p>S2</p> <p>Apply the Pythagorean Theorem and its converse</p> <p>S3</p> <p>Recognize the relationships between the measures of sides and angles in a triangle or triangles</p> <p>S4</p> <p>Employ the Triangle Inequality Theorem</p> <p>S5</p>

		Use the properties of special right triangles S6 Use Trigonometric ratios to solve right triangles
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Stage 3: Learning Plan

Coding	Code	Description of Learning Activity
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