

UNIT OF STUDY

Title: Unit 8	Subject/Course: Geometry	Length: 10 days
Topic: Special Right Triangles/ Trig Ratios/ Circle Segments		Grade: 10th
		Designer: Boyd
UNIT GOALS AND EXPECTATIONS		
IMPORTANT CONCEPTS/UNDERSTANDINGS: <ul style="list-style-type: none"> • Find the length of sides of special right triangles given the angles • Find the measures of the angles of special right triangles given the side lengths • Use trig ratios to find the length of the sides and measures of angles of right triangles • Identify special lines and segments of circles 	ESSENTIAL QUESTIONS: <ul style="list-style-type: none"> • What are the special right triangles? • What is the relationship between the sides and angle measurements? • What are the trig ratios? • How do you use the trig ratios to find side lengths and angle measurements? • What is the relationship between the lines and segments of a circle? 	
STUDENT LEARNING EXPECTATIONS: <ul style="list-style-type: none"> • T.2.G.5 Use the special right triangle relationships(30-60-90 and 45-45-90) to solve problems • T.2.G.6 Use trig ratios (sine, cosine, tangent) to determine the length of sides and measures of angles in right triangles including angles of elevation and angles of depression 	<ul style="list-style-type: none"> • T.2.G.7 Use similarity of right triangles to express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given including angles of elevation and angles of depression • R.4.G.5 Use the properties of angles, arcs, chords, tangents, and secants to solve problems involving circles 	
SPECIFIC DECLARATIVE KNOWLEDGE – What I know <ul style="list-style-type: none"> • Vocabulary: rationalize, Pythagorean triple, special right triangles, trig ratio, angle of elevation, angle of depression, right triangle, hypotenuse, leg, sine, cosine, tangent, chords, secant, tangent lines, point of tangency, radius, diameter • Describe the relationships between the length of sides of 30-60-90 triangles • Describe the relationships between the length of sides of 45-45-90 triangles • Identify angles of elevation and angles of depression • Identify chords, secants and tangents • Understand the relationship between a tangent and a radius at point of tangency. • Define point of tangency 	SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do <ul style="list-style-type: none"> • Rationalize the denominator • Find the length of two sides of a 30-60-90 triangle when one side is given • Apply the relationships of a 30-60-90 triangle to find missing sides and angles in diagrams and word problems • Find the length of two sides of a 45-45-90 triangle when one side is given • Apply the relationships of a 45-45-90 triangle to find missing sides and angles in diagrams and word problems • Find missing angles given lengths of sides of both 30-60-90 and 45-45-90 triangles • Write trig ratios of similar triangles • Write the sine, cosine, and tangent ratios of a right triangle given the lengths of the sides and the measure of one acute angle • Use trig ratios to find an angle measure or a side length of a right triangle in diagrams and real-world problems • Use trig ratios to find side lengths and or angles of elevation or depression in diagrams and real world problems 	
UNIT ASSESSMENTS		
(Include tasks related to Dimensions 3 and 4 and Bloom’s Taxonomy)		

<ul style="list-style-type: none"> • Open Response Unit 8 question 1 trigonometric ratios • TLI Open Response 	
Traditional Assessments: <ul style="list-style-type: none"> • Rationalize Denominator Quiz • Unit 8 Test • TLI module test • Vocabulary Quiz 	Other Evidence of Learning: <ul style="list-style-type: none"> • Homework • Class work

ACTIVITIES AND LEARNING EXPERIENCES	Resources
<ul style="list-style-type: none"> • Introduce vocabulary using 4-step strategy • Use flow chart to find the lengths of the sides of special right triangles • “Find the Height of the Telephone Pole” Activity • Use mnemonic to remember trig ratios (have students find their own phrase) • Use Surveying and Forestry to show real world situations for trig ratios (clinometer) • Model lines and segments of circles • Use Mastery Math to practice concepts 	<ul style="list-style-type: none"> • Mastery Math Notebook
Career Connections	
Surveyor, Carpenter, Architect, Mechanical Engineer, Civil Engineer, Forestry, Astronaut, Pilot	