

**Unit Title: “The Height of Read Hill: Trigonometry”**

**Course: Geometry**

**Subject Area: Mathematics**

**Time Frame: 14 days**

**Standards**

DCPS Geometry standards	Sunshine State Standards	NCEE New Standards
<p>The student will:</p> <p>7.2 Solve problems related to 30-60-90 and 45-45-90 triangles.</p> <p>Algebra</p> <p>The student will:</p> <p>8.4 Simplify radical expressions involving square roots.</p> <p>8.5 Add, subtract, and multiply radicals.</p> <p>Trigonometry</p> <p>The student will:</p> <p>4.5 Use appropriate instruments of technology to estimate the values of given trigonometric functions.</p> <p>5.1 Identify the six trigonometric ratios in terms of the sides of right triangles.</p> <p>5.2 Solve problems relating to right triangles</p> <p>5.3 Solve problems relating to oblique triangles using the Law of Sines.</p>	<p>MA.A.1.4.4</p> <p>The student will understand that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, absolute value, <i>and logarithms</i>.</p> <p>MA.B.1.4.3</p> <p>The student will relate the concepts of measurement to similarity and proportionality in real-world applications.</p> <p>MA.C.1.4.1</p> <p>The student will use properties and relationships of geometric shapes to construct formal and informal proofs.</p> <p>MA.C.3.4.1</p> <p>The student represents and applies geometric properties and relationships to solve real-world</p>	<p>The student:</p> <p>M1a Consistently and accurately adds, subtracts, multiplies, and divides rational numbers using appropriate methods and raises rational numbers to whole number powers.</p> <p>M1c Consistently and accurately applies and converts the different kinds and forms of rational numbers.</p> <p>M2a Models situations geometrically to formulate and solve problems.</p> <p>M2b Works with two- and three-dimensional figures and their properties, including polygons and circles, cubes and pyramids, cylinders, cones, and spheres.</p> <p>M2c Uses congruence and similarity in describing relationships between figures.</p> <p>M2f Uses the Pythagorean Theorem in many types of situations, and works through more than one proof of this theorem.</p> <p>M2g Works with similar triangles, and extends the ideas to include simple uses</p>

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	and mathematical problems including ratio proportion, and properties of right triangle trigonometry.	<p>of the three basic trigonometric functions.</p> <p>M2h Analyzes figures in terms of their symmetries using, for example, concepts of reflection, rotation, and translation.</p> <p>M2o Represent geometric curves and graphs of functions in standard coordinate systems.</p> <p>M2p Analyzes geometric figures and proves simple things about them using deductive methods.</p>

### Desired Results

Enduring Understanding	Essential Questions	Knowledge and Skills
<p>Students will understand:</p> <ul style="list-style-type: none"> <li>The power of trigonometry reduces the importance of many pre-calculator conventions.</li> </ul>	<ul style="list-style-type: none"> <li>How can the use trigonometry express relationship we see in everyday world?</li> <li>Can the use of trigonometry give us the power to solve more involved application problems?</li> </ul>	<p>Students will know</p> <ul style="list-style-type: none"> <li>Key terms (e.g., sine, cosine, tangent, Law of Sines, 30-60-90 triangle, 45-45-90 triangle).</li> </ul> <p>Students will be able to</p> <ul style="list-style-type: none"> <li>Solve problems related to 30-60-90 and 45-45-90 triangles.</li> <li>Simplify radical expressions involving square roots.</li> <li>Add, subtract, and multiply radicals.</li> <li>Use appropriate instruments of technology to estimate the values of given trigonometric functions.</li> <li>Identify the six trigonometric ratios in terms of the sides of right triangles.</li> <li>Solve problems relating to right triangles</li> <li>Solve problems relating to oblique triangles using the Law of Sines.</li> </ul>

### Acceptable Evidence

Performance Tasks	Quizzes, Test, and Work Samples	Observations and Dialogues
<ul style="list-style-type: none"> <li><b>Exploring Sine, Cosine, and Tangent with a Calculator</b> The sine, cosine, and tangent ratios are introduced. Students solve application problems using calculators.</li> <li><b>Tangent and Slope</b> The connection of the tangent ratio and slope as equivalent is made through looking at slope triangles.</li> </ul>	<p>Check-Up 1 Quiz A Check-Up 2 Quiz B Unit Test</p>	<p>Teacher observations of students during work on performance tasks. Accountable talk during work on performance tasks.</p>

