

**C2.0 Geometry Unit 2: Similarity, Right Triangles, and Trigonometry**

Topic	Course Overview
<b>Topic 1: Similarity</b>	<p>Students apply their earlier experience with dilations and proportional reasoning to build a formal understanding of similarity. They identify criteria for similarity of triangles, use similarity to solve problems, and apply similarity in right triangles to understand right triangle trigonometry, with particular attention to special right triangles and the Pythagorean theorem.</p> <p><b><u>Concepts:</u></b></p> <ul style="list-style-type: none"> <li>• Draw a dilation when given a rule (center and scale factor greater than 0).</li> <li>• Draw a dilation when given a rule (center and scale factor greater than 0) and write a rule given a dilation.</li> <li>• Verify that a side length of the image is equal to the scale factor multiplied by the corresponding side length of the pre-image of the dilation.</li> <li>• Develop a definition for similarity using the principles of dilation and identify examples and non-examples of similarity.</li> <li>• Develop similarity statements and identify corresponding angles and sides based on the statements.</li> <li>• Show that A-A, S-A-S, and S-S-S are sufficient conditions to prove triangle similarity.</li> <li>• Use triangle similarity criteria (AA, SAS, SSS) to show that two triangles are similar.</li> <li>• Use triangle similarity criteria to show that two triangles are similar.</li> <li>• Use triangle similarity to prove a line parallel to one side of a triangle divides the other two proportionally, and its converse.</li> <li>• Use triangle similarity to prove the Pythagorean Theorem and its converse.</li> <li>• Apply triangle congruence and triangle similarity to solve problem situations.</li> <li>• Prove polygons similar or congruent using similarity or congruence criteria.</li> </ul>

Topic	Course Overview
<b>Topic 2: Right Triangles and Trigonometry</b>	<p>Students apply their earlier experience with dilations and proportional reasoning to build a formal understanding of similarity. They identify criteria for similarity of triangles, use similarity to solve problems, and apply similarity in right triangles to understand right triangle trigonometry, with particular attention to special right triangles and the Pythagorean theorem. In Honors Geometry, students also investigate the Laws of Sines and Cosines in order to find missing measures of general (not necessarily right) triangles. They are able to distinguish whether three given measures (angles or sides) define 0, 1, 2, or infinitely many triangles.</p> <p><b><u>Concepts:</u></b></p> <ul style="list-style-type: none"> <li>• Prove that the altitude to the hypotenuse in a right triangle creates similar triangles.</li> <li>• Develop trigonometric ratios for angles using the relationships between sides and angles in a right triangle.</li> <li>• Find the side ratios for sine, cosine, and tangent of a given triangle.</li> <li>• Determine the relationship between sine and cosine.</li> <li>• Apply trigonometric ratios and the Pythagorean Theorem to solve for missing angles and sides of right triangles.</li> <li>• Model and solve application problems involving right triangles.</li> </ul> <p><b><u>Additional Honors Concepts (+):</u></b></p> <ul style="list-style-type: none"> <li>• Derive the trigonometric formula for the area of a triangle.</li> <li>• Use the law of sines to solve problems.</li> <li>• Use the law of cosines to solve problems.</li> <li>• Apply the law of sines and law of cosines to solve problems.</li> </ul>

(+) standards reflect instruction that is unique to the C2.0 Honors Geometry course