

New Hampshire High School Geometry
Mathematics Curriculum Framework, 2006

Geometry Performance Standard	Boardworks High School Geometry presentation
M:G&M:HS:2 Creates formal proofs of propositions (e.g., angles, lines, circles, distance, midpoint and polygons including triangle congruence and similarity).	Congruence and similarity Using congruence and similarity Lines Angles Polygons Interior and exterior angles of polygons Using polygons Triangles Quadrilaterals Parts of a circle Angles in a circle

<p>M:G&M:10:2 Makes and defends conjectures, constructs geometric arguments, uses geometric properties, or uses theorems to solve problems involving angles, lines, polygons, circles, or right triangle ratios (sine, cosine, tangent) within mathematics or across disciplines or contexts (e.g., Pythagorean Theorem, Triangle Inequality Theorem). [NECAP]</p>	<p>The Pythagorean Theorem Identifying right triangles Pythagorean triples Similar right triangles Calculating sides of a triangle Finding the length of diagonals using the Pythagorean Theorem Finding the height of triangles using the Pythagorean Theorem Using the Pythagorean Theorem to solve problems in context Finding the distance between two points using the Pythagorean Theorem Finding the diagonal in a rectangular prism Right triangles The sine ratio The cosine ratio The tangent ratio Trigonometry summary Lines Angles Polygons Interior and exterior angles of polygons Using polygons Triangles Quadrilaterals Parts of a circle Angles in a circle The Triangle Inequality Theorem Special right triangles</p>
<p>M:G&M:HS:4 Applies the concepts of congruency by using matrices to represent reflections, translations, and rotations.</p>	<p>Reflection symmetry Rotational symmetry Reflection and rotational symmetry Reflection symmetry in 3D shapes Rotational symmetry in 3D shapes Translation Rotation Combining transformations</p>

<p>M:G&M:10:4 Applies the concepts of congruency by solving problems on or off a coordinate plane involving reflections, translations, or rotations; or solves problems using congruency involving problems within mathematics or across disciplines or contexts. [NECAP]</p>	<p>Congruence and similarity Using congruence and similarity Rotation Translation Rotational symmetry Reflection symmetry Reflection and rotational symmetry Dilation The center of dilation</p>
<p>M:G&M:HS:5 Applies concepts of similarity to define the trigonometric functions as ratios of sides of right triangles; uses the ratios of the sides of special right triangles ($30^\circ - 60^\circ - 90^\circ$ and $45^\circ - 45^\circ - 90^\circ$) to determine the sine, cosine and tangent of 30°, 45°, and 60°; and solves related problems.</p>	<p>Opposite and adjacent sides The sine, cosine and tangent of any angle Trig value functions on the unit circle Sin, cos and tan of 30°, 45° and 60° Applying trigonometry Right triangles Similar right triangles Special right triangles</p>
<p>M:G&M:10:5 Applies concepts of similarity by solving problems within mathematics or across disciplines or contexts. [NECAP]</p>	<p>Congruence and similarity Using congruence and similarity Dilation The center of dilation</p>
<p>M:G&M:HS:6 Applies trigonometric formulas (e.g., Law of Sines, Law of Cosines, $A = \frac{1}{2}ab \sin C$) to find angles, lengths and areas of polygons.</p>	<p>The area of a triangle The law of cosines The law of sines</p>

<p>M:G&M:10:6 Solves problems involving perimeter, circumference, or area of two-dimensional figures (including composite figures) or surface area or volume of three-dimensional figures (including composite figures) within mathematics or across disciplines or contexts. [NECAP]</p>	<p>Area formulas and calculations Using area formulas Radius and circumference The area of a circle The length of an arc The area of a sector Edges of rectangular prisms Prisms Pyramids Cylinders, cones and spheres Using length, area and volume formulas Surface area of rectangular prisms Volume of right rectangular prisms</p>
<p>M:G&M:HS:7 Applies informal concepts of successive approximation, upper and lower bounds, and limits in measurement situations (e.g., use successive approximation to find the area of a pond); and uses measurement conversion strategies (e.g., unit/dimensional analysis).</p>	<p>Converting units Customary units Continuous measurements Calculations involving bounds Ratios</p>
<p>M:G&M:10:7 Uses units of measure appropriately and consistently when solving problems across content strands; makes conversions within or across systems and makes decisions concerning an appropriate degree of accuracy in problem situations involving measurement in other GSEs. [NECAP]</p>	<p>Converting units Customary units Continuous measurements Calculations involving bounds Ratios</p>
<p>M:G&M:10:9 Solves problems on and off the coordinate plane involving distance, midpoint, perpendicular and parallel lines, or slope. [NECAP]</p>	<p>The distance between two points The midpoint of a line segment The equation of a straight line Slopes and intercepts Parallel and perpendicular lines</p>
<p>M:G&M:HS:10 Demonstrates conceptual understanding of spatial reasoning and visualization by sketching or using dynamic geometric software to generate three-dimensional objects from two-dimensional perspectives, or to generate two-dimensional perspectives from three-dimensional objects, and by solving related problems; perform and justify constructions with a compass and straightedge or dynamic geometric software. [NECAP]</p>	<p>Reflection symmetry in 3-D shapes Rotational symmetry in 3-D shapes Prisms Pyramids Cylinders, cones and spheres Constructing bisecting lines and angles Constructing triangles</p>