

Brookfield Local Schools
Curriculum Map for Geometry
Unit # 8 Title: Right Triangle Properties

Duration of Unit:

2 weeks

Topic Sequence:

3 weeks

Student Friendly Learning Targets:

I can apply geometric means to calculate missing segment lengths in triangles.

I can identify the sine, cosine, and tangent ratios of acute angles.

I can apply properties of inverses to the sine, cosine, and tangent ratios.

I can use sine, cosine, and tangent to solve problems modeled in the real world.

I can apply trigonometric ratios to problems involving angles of elevation and angles of depression.

I can solve a right triangle.

I can apply the Law of Sines to solve a triangle.

I can apply the Law of Cosines to solve a triangle.

I can identify the magnitude and direction of a vector.

I can identify and use properties regarding the unit circle.

Common Core State Standards Addressed:

G.SRT.4: Prove theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.*

G.SRT.6: 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.

G.SRT.7: Explain and use the relationship between the sine and cosine of complementary angles.

G.SRT.10: Prove the Laws of Sines and Cosines and use them to solve problems.

G.SRT.11: Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

G.MG.3: Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

Vocabulary:

Right triangle, trigonometric ratio, sine, cosine, tangent, solve a triangle, inverse trigonometric ratio, Law of Sines, Law of Cosines, angle of elevation, angle of depression, acute angle, altitude, geometric mean, geometric model

Materials and/or Technology Needed:

Smartboard, Holt-McDougal Geometry Textbook, Whiteboards, Protractors, Compasses, Straight Edges

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Instructional Notes:

Instruction should integrate with the standards that comprise the Right Triangle Properties Unit.

Instructional and Assessment Resources:

Formative Assessment Lessons: <http://map.mathshell.org/materials/lessons.php>

Formative Assessment Tasks: <http://map.mathshell.org/materials/tasks.php>

Illustrative Mathematics: <http://www.illustrativemathematics.org/standards/k8>

NCTM Illuminations: <http://illuminations.nctm.org/>

PARCC: <http://www.parcconline.org/mcf/mathematics/parcc-model-content-frameworks-browser>

Inside Mathematics: <http://insidemathematics.org/index.php/mathematical-content-standards>

New York State: <http://www.engageny.org/mathematics>

<http://mathforum.org/>, <http://www.nctm.org/>, <http://plus.maths.org/content/>,

<http://www.pbslearningmedia.org/>, <http://www.mathwords.com/>,

<http://www.math.com/homeworkhelp/Geometry.html>, <http://mathworld.wolfram.com/>,

<http://nlvm.usu.edu/en/nav/vlibrary.html>, <http://www.purplemath.com/>, Holt-McDougal Geometry

Textbook

Assessment Notes:

The Focus Topic will have three multiple choice questions and one extended response on the proficiency assessment.