

Brookfield Local Schools
Curriculum Map for Geometry
Unit # 9 Title: Perimeter and Area

Duration of Unit:

3 weeks

Topic Sequence:

3 weeks

Student Friendly Learning Targets:

- I can apply geometric concepts to solve formulas for a given variable.
- I can derive and apply formulas for the areas of special polygons.
- I can solve problems involving perimeters and areas of triangles and special quadrilaterals.
- I can develop and apply formulas for the area and circumference of a circle and regular polygons.
- I can apply the Area Addition Postulate to calculate areas of composite figures.
- I can calculate perimeters and areas in the coordinate plane.
- I can determine the effect on perimeter and area when changing a scale factor.
- I can calculate geometric probabilities and apply them to real world events.

Common Core State Standards Addressed:

- G.CO.12: Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). *Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*
- G.GMD.1: Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. *Use dissection arguments, Cavalieri's principle, and informal limit arguments.*
- G.GPE.7: Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.
- G.SRT.9: Derive the formula $A = \frac{1}{2}ab\sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
- G.MG.1: Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
- 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:

Construction, straightedge, compass, perimeter formula, area formula, modeling, pi, circle, circumference, diameter, radius, apothem, base, height, regular polygon, scale factor, geometric probability,

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 Perimeter and Area 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](http://www.parcconline.org/mcf/mathematics/parcc-model-content-frameworks-browser)

Inside Mathematics: [http://insidemathematics.org/index.php/mathematical - content - standards](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.