

Brookfield Local Schools
Curriculum Map for Geometry
Unit # 10 Title: Spatial Reasoning and Volume

Duration of Unit:

3 weeks

Topic Sequence:

3 weeks

Student Friendly Learning Targets:

I can classify 3-dimensional figures using their properties, nets, and cross-sections.

I can draw 3-dimensional figures using isometric and orthographic perspectives.

I can apply Euler's Formula, the Midpoint Formula, and the Distance Formula to polyhedrons.

I can apply surface area formulas to prisms, cylinders, pyramids, and cones.

I can apply volume formulas to prisms, cylinders, pyramids, and cones.

I can apply surface area and volume formulas to spheres.

Common Core State Standards Addressed:

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.GMD.2: Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.

G.GMD.3: Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

G.GMD.4: Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

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).

Vocabulary:

Volume, surface area, 3-dimensional, sphere, prism, cylinder, pyramid, cone, base area, cross section, Cavalieri's Principle, rotate,

Materials and/or Technology Needed:

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

Instructional Notes:

Instruction should integrate with the standards that comprise the Spatial Reasoning and Volume Unit.

Brookfield Local Schools
Curriculum Map for Geometry
Unit # 10 Title: Spatial Reasoning and Volume

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.