

6Richmond Public Schools
Department of Curriculum and Instruction
Curriculum Pacing And Resource Guide – Unit Plan



Course Title/ Course #: Pre-Algebra Math 8

Unit Title/ Marking Period # (MP): Pythagorean Theorem/MP 2

Start day: 69

Meetings (Length of Unit): 8 Days

<i>Desired Results ~ What will students be learning?</i>
<u>Standards of Learning/ Standards</u>
8.7 The student will a) investigate and solve practical problems involving volume and surface practical problems involving volume and surface area of prisms, cylinders, cones, and pyramids; and b) describe how changing one measured attribute of the figure affects the volume and surface area.
<u>Essential Understandings/ Big Ideas</u>
<ul style="list-style-type: none">• How does the volume of a three-dimensional figure differ from its surface area?• How are the formulas for the volume of prisms and cylinders similar?• How are the formulas for the volume of cones and pyramids similar?• In general what effect does changing one attribute of a prism by a scale factor have on the volume of the prism?
<u>Key Essential Skills and Knowledge</u>
<ul style="list-style-type: none">• Distinguish between situations that are applications of surface area and those that are applications of volume.• Investigate and compute the surface area of a square or triangular pyramid by finding the sum of the areas of the triangular faces and the base using concrete objects, nets, diagrams and formulas.• Investigate and compute the surface area of a cone by calculating the sum of the areas of the side and the base, using concrete objects, nets, diagrams and formulas.• Investigate and compute the surface area of a right cylinder using concrete objects, nets, diagrams and formulas.• Investigate and compute the surface area of rectangular prism using concrete objects, nets, diagrams and formulas.• Investigate and compute the volume of prisms, cylinders, cones, and pyramids, using concrete objects, nets, diagrams and

formulas.

- Solve practical problems using volume and surface area of prisms, cylinders, cones, and pyramids.

Vocabulary

3-dimensional Face Vertex Side, Base Area Surface area volume	Pyramid Prism Cone Cylinder Circumference Net Lateral height Perimeter	
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Assessment Evidence ~ What is evidence of mastery? What did the students master & what are they missing?

Assessment/ Evidence

Mulligan Checkpoint 8.7
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Interactive Achievement
HCPS Mini Quizzes

Students should be able to use their formulas to calculate the surface area and volume.
Students should be able to apply formulas to practical problems.

Learning Plan ~ What are the strategies and activities you plan to use?

Learning Experiences/ Best Practice

- Foldable with all examples of shapes. One day could be spent doing surface area and the next volume.
- Have students try to derive the formula for volume and surface area based on the faces of the shape. Then compare theirs to the actual formulas.
- VDOE lesson for changing attributes-you can have one group work on each shape and discuss whole group or divide the activity into stations and have students travel through the stations.

Technology Integrations

Gizmo
Educational Games-under resources
Compass Learning
Allen Teachers
Brain Pop
Khan Academy

Resources

Text:

Glencoe Pre-Algebra pages:
713-718 (Volume of Prisms)
719-723 (Volume of Cylinders)
725-730 (Volume of Pyramid, Cones and Spheres)
733-737 (Surface Area of Prisms)
739-743 (Surface Area of Cylinders)
744-749 (Surface Area of Pyramids and Cones)

Mulligan Math in Minutes 8.7
SOL Coach Book Va Edition: pages 67-87

Technology:

Gizmo-[Prisms and Cylinders Activity A](#)- Interactive Instructional Resource
Gizmo-[Pyramids and Cones Activity A](#)- Interactive Instructional Resource
Learn Alberta-[Exploring Surface Area, Volume and Nets](#)-Interactive Lesson
Brain Pop-[Volume of Prisms](#)-Interactive video and lesson
Compass Learning-<https://www.thelearningodyssey.com> - M8145, M8148, M8151, 8088, 8090, 8091, M7173, M8165, M8168

Virginia Department of Education

VDOE-[Surface Area and Volume](#)-Lesson Plan
VDOE-[Changing Attributes](#)-Lesson Plan

Other Sites

HCPS - [Surface Area and Volume](#) - Instructional materials, practice page, assessments
Radford University Lesson-[Volume and Surface Area](#)-Lesson Plan Performance Task
Illuminations-[Popcorn Anyone?](#)-Lesson Plan
[Pack it up!](#) Comparing volume of different shapes

[That Should Cover it!](#) Lesson on comparing surface area. Also has other activities.

Cross Curricular Connection