

Unit Title: “The TransAmerica Pyramid: Spatial Visualization”

Course: Geometry

Subject Area: Mathematics

Time Frame: 12 days

Standards

DCPS Geometry Standards	Sunshine State Standards Benchmarks	NCEE New Standards
<p>The student will:</p> <p>9.3 Find lateral area and total area of selected solids, including prisms, pyramids, cylinders, and cones.</p> <p>9.4 Find the volume of prisms, pyramids, cylinders, cones, and spheres.</p>	<p>MA.B.1.4.1</p> <p>The student will use concrete and graphic models to derive formulas for finding perimeter, area, surface area, circumference, and volume of two- and three-dimensional shapes, including rectangular solids, cylinders, cones, and pyramids.</p>	<p>The student:</p> <p>M2a Models situations geometrically to formulate and solve problems.</p> <p>M2b Works with two- and three-dimensional figures and their properties, including polygons and circles, cubes and pyramids, and cylinders, cones, and spheres.</p> <p>M2e Knows, uses, and derives formulas for perimeter, circumference, area, surface area, and volume of many types of figures.</p> <p>M2k Works with geometric measures of length, area, volume, and angles; and non-geometric measures such as weight and time.</p>

Desired Results

Enduring Understanding	Essential Questions	Knowledge and Skills
<p>Students will understand:</p> <ul style="list-style-type: none"> Spatial visualization is an important aspect of geometry and geometric reasoning. Isometric drawing help us “read” and communicate information about three-dimensional objects from two-dimensional drawing. 	<ul style="list-style-type: none"> How can three-dimensional objects be represented in two-dimension? How can a better understanding of space and solid figures be developed? How can imagining skills be developed by studying three-dimensional objects – such as building made from cubes? What is the value in studying an isometric drawing? 	<p>Students will know</p> <ul style="list-style-type: none"> Key terms (e.g., isometric, polyhedron, prism, pyramid, face, edge, vertices.) <p>Students will be able to</p> <ul style="list-style-type: none"> Find lateral area and total area of selected solids, including prisms, pyramids, cylinders, and cones. Find the volume of prisms, pyramids, cylinders, cones, and spheres.

Acceptable Evidence

Performance Tasks	Quizzes, Test, and Work Samples	Observations and Dialogues
<ul style="list-style-type: none"> Visualizing Development of students’ spatial visualization skills through rich, hands-on problem situations. Isometric Drawings Students are introduced to isometric dot paper, which has dots arranged in a pattern useful for making drawing of cube buildings as viewed from a corner. Students build simple cube structures. Such isometric drawings show three faces of a cube building at the same time. Polyhedra and Surface Area Students explore polyhedra by constructing various polyhedra. The main purpose of the construction is to help students realize that the faces are polygons. 	<p>Check-Up 1 Quiz A Check-Up 2 Quiz B Unit Test</p>	<p>Teacher observations of students during work on performance tasks. Accountable talk during work on performance tasks.</p>