Grade 6 Mathematics – Unit 6: Geometry

Phoenixville Area School District

Stage 1 Desired Results

PA Core Standards:
M06.C-G.1.1 Find area, surface area, and volume by applying formulas and using various strategies

PSSA Assessment Anchors:
M06.C-G.1 Solve real-world and mathematical problems involving area, surface area, and volume.

Transfer

TRANSFER GOALS
Students will be able to independently use their learning to…

- *Problem-Solving:* Persistently apply various problem-solving strategies and organized approaches to accurately understand and solve problems and provide evidence to support response.
- *Mathematical Vocabulary:* Interpret mathematical vocabulary and apply proper terminology to engage in meaningful oral and written expression that communicates mathematical thinking, problem-solving methods, and rationale.
- *Reasoning:* Demonstrate mathematical resilience and conceptual understanding through the use of vocabulary, written expression, graphical representation, and alternate strategies.

Meaning

UNDERSTANDINGS
Students will understand that…

- One-, two-, and three-dimensional objects are described, classified, and analyzed by their critical attributes.
- The accurate measurement of space is determined by the ability to visualize the object/problem situation and apply an appropriate algorithm.

ESSENTIAL QUESTIONS
Students will keep considering...

- What are the mathematical attributes of objects or processes and how are they measured or calculated?
- How are spatial relationships, including shape and dimension, used to draw, construct, model and represent real situations or solve problems?

Knowledge and Skills Acquisition

KNOWLEDGE
Students will know…

- Area of squares, rectangles, parallelograms, rhombuses, trapezoids, and triangles
- Area of composite figures which requires the sum of the areas of the polygons that make the irregular shape
- Nets of cubes, triangular prisms, and rectangular prisms
- Surface area of cubes, triangular prisms, and rectangular prisms
- Volume of rectangular prisms.
- Area of two-dimensional figures on a coordinate plane

SKILLS
Students will be skilled at…

- Calculating the area of two-dimensional figures using the given formulas and substituting the lengths of the sides for the variables.
- Determining the area of at least two shapes that form an irregular figure by adding these products together.
- Representing three-dimensional figures using nets made of rectangles and triangles to develop a spatial awareness.
- Calculating the surface area of triangular and rectangular prisms and cubes by drawing a net and identifying the area of each face. The area of each face is then added together. Formulas will also be provided.

	VOCABULARY • Acute Angle • Adjacent Angle • Irregular Polygon • Net • Surface Area • Trapezoid	• Determining the volume of right rectangular prisms with whole number and/or fractional edge lengths. Formulas will be provided. • Given coordinates for the vertices of a polygon in the plane, using the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals). • Plotting the coordinates on a coordinate plane, identifying the side lengths of the figure, applying a given formula, and calculating the area will provide the area of the two-dimensional figure.

Stage 2 – Evidence

Code A/M/T	Evaluative Criteria	Assessment Evidence	
A/M/T Acquisition Meaning Making Transfer	*What criteria will be used in each assessment to evaluate attainment of the desired results?*	PERFORMANCE TASK(S) *Students will demonstrate understanding (meaning making and transfer) through complex performance by...* **Building Blocks** Analyze the characteristics and properties of three-dimensional geometric shapes and apply appropriate formulas to determine measurements. • ***Goal:*** Your task is to use building blocks to find the volume of the shape built. • ***Role/Audience:*** You are the older sibling working with building blocks. • ***Situation/Product:*** You will find the volume of one block and then, find the volume of a stack of blocks. • ***Success Criteria:*** Your final calculation will be supported by an explanation and illustration.	**Differentiation Considerations:** Partial credit is provided to students that demonstrate steps even if their answer is not correct. The assessment can be read to students. Encouragement is given to highlight certain instructions.
A/M/T Acquisition Meaning Making Transfer	*What criteria will be used in each assessment to evaluate attainment of the desired results?*	OTHER EVIDENCE **[Unit Test]** • [Multiple Choice] • [Matching] • How does the area of a rectangle compare to the area of a triangle? • Describe two differences between a pyramid and prism? • Explain how the area of a composite figure is found. • What real-world situations utilize surface area? • What real-world situation utilize volume?	**Differentiation Considerations:** Questions testing similar skills are modified. Work needs to be shown. Advanced students can write high level sentences utilizing math vocabulary and include examples when responding to the written responses. Partial credit is provided to students that demonstrate steps even if their answer is not correct. The assessment can be read to students. Encouragement is given to highlight certain instructions.