



**Marietta City Schools**  
**2024–2025 District Unit Planner**

*Grade 6 Mathematics*

<b>Unit title</b>	Unit 6: Exploring Area and Volume	<b>MYP year</b>	1	<b>Unit duration (hrs)</b>	15 hours
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**Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit):** *What will students learn?*

**GA DoE Standards**

**Standards**

**6.MP:** Display perseverance and patience in problem-solving. Demonstrate skills and strategies needed to succeed in mathematics, including critical thinking, reasoning, and effective collaboration and expression. Seek help and apply feedback. Set and monitor goals.

***6.GSR.5: Solve relevant problems involving area, surface area, and volume.***

<b>Expectations</b>		<b>Evidence of Student Learning</b> (not all inclusive; see Grade Level Overview for more details)		
6.GSR.5.1	Explore area as a measurable attribute of triangles, quadrilaterals, and other polygons conceptually by composing or decomposing into rectangles, triangles, and other shapes. Find the area of these geometric figures to solve problems.	<b><i>Age and Developmentally Appropriate</i></b> <ul style="list-style-type: none"> <li>● Students should build on prior knowledge of area to investigate the area of other polygons through geometric and spatial reasoning tasks.</li> </ul>	<b><i>Strategies and Methods</i></b> <ul style="list-style-type: none"> <li>● Students should be able to use knowledge of area of a rectangle to determine the area of a triangle.</li> <li>● Students should have opportunities to find the area of a triangle by decomposing the rectangle into two triangles.</li> <li>● Students should conclude the area of the triangle is half the area of</li> </ul>	<b><i>Terminology</i></b> <ul style="list-style-type: none"> <li>● A polygon is a closed figure with at least three straight sides and angles; a polygon is regular only when all sides are equal and all angles are equal; and a polygon is irregular when all sides are not equal or all angles are not equal.</li> </ul>

			<p>the rectangle and the area of the rectangle is twice the area of the triangle. Therefore, the formula for the area of a triangle is <math>\frac{1}{2} \times \text{base} \times \text{height}</math> or <math>\frac{\text{base} \times \text{height}}{2}</math>.</p> <ul style="list-style-type: none"> <li>• Students should be able to use geometric and spatial reasoning to calculate the area of a triangle, quadrilateral, and regular polygon by composing or decomposing into shapes, such as, but not limited to triangles, rectangles, trapezoids, rhombi, etc.</li> <li>• Students should be presented with mathematical problems found in the real world.</li> <li>• Students should be able to decompose regular and irregular polygons into triangles and quadrilaterals in a way that makes sense from their perspective.</li> </ul>	
6.GSR.5.2	Given the net of three-dimensional figures with rectangular and triangular faces, determine the surface area of these figures.	<p><b>Strategies and Methods</b></p> <ul style="list-style-type: none"> <li>• Students should use various tools and strategies including a picture or physical model of a net to measure the surface area of three-dimensional figures that are composed of rectangular and triangular faces when solving practical, mathematical problems.</li> </ul>	<p><b>Age and Developmentally Appropriate</b></p> <ul style="list-style-type: none"> <li>• Students should be provided the net of three-dimensional figures to ensure developmental appropriateness.</li> </ul>	

6.GSR.5.3	Calculate the volume of right rectangular prisms with fractional edge lengths by applying the formula, $V = (\text{area of base}) \times (\text{height})$ .	<p><b>Age and Developmentally Appropriate</b></p> <ul style="list-style-type: none"> <li>Fractional edge lengths should be limited to fractions with a denominator of 2, 3, and 5.</li> <li>At this grade level, problems should not include volume displacement.</li> </ul>	<p><b>Fundamentals</b></p> <ul style="list-style-type: none"> <li>Students should make the connection between (length) x (width) and the area of the base to connect this formula to other three-dimensional volume formulas.</li> </ul>	<p><b>Strategies and Methods</b></p> <ul style="list-style-type: none"> <li>Students should be able to calculate the volume of a right rectangular prism with fractional edge lengths and show that the volume is the same as would be found by multiplying the edge lengths of the prism.</li> <li>Students should apply the formula for the volume of a right rectangular prism in the context of solving authentic, mathematical problems to meet this learning objective.</li> </ul>
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**Vocabulary:** [K-12 Mathematics Glossary](#)

2-Dimensional	Cubic Units	Face	Net	Quadrilaterals	Right Rectangular Prism	Triangles
3-Dimensional	Decomposing	Fractional Edge Length	Parallelogram	Rectangles	Scalene Triangle	Triangular Prism
Area	Dimension	Isosceles Triangle	Polygon	Rectangular Prisms	Square	Vertices
Bases of a Prism	Edge	Kite	Polyhedron	Rhombus	Surface Area	Volume
Composing	Equilateral Triangle	Lateral Faces	Prism	Right Triangle	Trapezoid	Volume of a Prism

Key concept	Related concept(s)	Global context
<p><b>Form</b></p> <p>The shape and underlying structure of an entity or piece of work, including its organization, essential nature and external appearance.</p>	<p>Model</p> <p>Space</p> <p>Measurement</p>	<p><b>Orientation in Time and Space</b></p> <p>Natural and human landscapes and resources</p>

**Statement of Inquiry**

Understanding simple shapes helps us enhance our environments.

**Inquiry questions**

**Factual** — How do simple figures help us find the area of more complex figures? How can we use manipulatives and nets to help compute the surface area of prisms?

**Conceptual** — What kind of problems can be solved using surface areas of rectangular and triangular prisms? What kind of problems can be solved using volumes of fundamental solid figures?

**Debatable** — Decomposing is more efficient than using composing to determine the area of an irregular shape.

MYP Objectives	Assessment Tasks	
What specific MYP <b>objectives</b> will be addressed during this unit?	<b>Relationship</b> between summative assessment task(s) and statement of inquiry:	List of common formative and summative assessments.
MYP Assessment: Criteria D (Applying Math to real-world context)	Assessments will involve students in solving real-world style problems based on calculating surface area and volume of 2D and 3D figures	<b>Formative Assessment(s):</b> Unit 6 CFA  <b>Summative Assessment(s):</b> Unit 6 Test/MYP

**Approaches to learning (ATL)**

**Category:** Social  
**Cluster:** Collaboration Skills  
**Skill Indicator:**  
 Give and receive meaningful feedback.

**Learning Experiences**  
 Add additional rows below as needed.

Objective or Content	Learning Experiences	Personalized Learning and Differentiation
<p><b>6.GSR.5.3:</b> Calculate the volume of right rectangular prisms with fractional edge lengths by applying the formula, <math>V = (\text{area of base}) \times (\text{height})</math>.</p>	<p><b>Volume and Cubes</b>            In this problem-based learning plan, students will examine the mathematical relationship between the volume of a rectangular prism in cubic units and the number of unit cubes with fractional edge lengths (i.e., <math>\frac{1}{2}</math>-inch) it takes to fill the prism.</p>	<p>Students will have the opportunity to model to the teacher and their peers their understanding of this task. Students could do this through multiple ways such as numbers, words, drawing pictures, using objects, acting out, making a chart, list, or graph, creating equations, etc.</p>
Content Resources		
<p><a href="#">6-11 Savvas Correlation to 2021 standards</a></p> <p><b>GaDoe Intervention Table of Tasks/Activities</b></p> <p><b>Additional Resources</b></p> <ul style="list-style-type: none"> <li>● Savvas</li> <li>● Desmos</li> <li>● Hands-On Math</li> </ul>		