

Grade 6 Math C1 TH

<p>Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p>	
<p>Content Domain: Geometry</p>	
<p>Target H [s]: Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p>Tasks for this target will ask students to find area (triangles, special quadrilaterals, and polygons) using composition and decomposition; to find volume of right rectangular prisms with fractional edge lengths (see connections to 6.NS Target B); identify and use nets of three-dimensional figures to find surface area; and draw polygons in the coordinate plane with given coordinates or determine one or more missing coordinates to generate a given polygon.</p> <p>Many tasks for this target will provide context for Claims 2-4 and connect the content of this target to several other targets across Claim 1 (see, for example, 6.NS Targets B and C, 6.EE Targets E, F, and G).</p>	
Standards:	6.G.1, 6.G.2, 6.G.3, 6.G.4
DOK Target(s):	1, 2
Evidence Required:	<ol style="list-style-type: none"> 1. The student determines the area of triangles, special quadrilaterals, and polygons using composition and decomposition in solving real-world and mathematical problems. 2. The student determines the volume of right rectangular prisms with fractional edge lengths in solving real-world and mathematical problems. 3. The student identifies nets of three-dimensional figures in the context of solving real-world and mathematical problems. 4. The student determines the surface area of three-dimensional figures formed by nets of polygons in the context of solving real-world and mathematical problems. 5. The student draws polygons in the coordinate plane, given coordinates for the vertices in the context of solving real-world and mathematical problems. 6. The student determines the length of a side of a polygon in the coordinate plane, given coordinates for the vertices in the context of solving real-world and mathematical problems. 7. The student determines one or more missing coordinates in the coordinate plane that would complete the drawing of a polygon in the context of solving real-world and mathematical problems.
Allowable Item Types*:	SR, CR, TE
Task Models:	<ol style="list-style-type: none"> 1. SR (DOK 1, 2) <p>Prompt Features: The student is prompted to use composition</p>

	<p>and decomposition to identify the areas of triangles, special quadrilaterals, and other polygons in solving real-world and mathematical problems.</p> <p>Stimulus: The student is presented with a real-world or mathematical problem involving composition or decomposition of a triangle, special quadrilateral, or other polygon.</p> <p>1. CR (DOK 2)</p> <p>Prompt Features: The student is prompted to use composition and decomposition to determine the areas of triangles, special quadrilaterals, and polygons in solving real-world and mathematical problems.</p> <p>Stimulus: The student is presented with a real-world or mathematical problem involving composition or decomposition of a triangle, special quadrilateral, or other polygon.</p> <p>2. SR (DOK 1, 2)</p> <p>Prompt Features: The student is prompted to identify the volume of a right rectangular prism by packing it with unit cubes of the appropriate unit fraction edge lengths. Or the student is prompted to identify the volume of a right rectangular prism by applying the formulas $V = lwh$ and $V = bh$.</p> <p>Stimulus: The student is presented with a right rectangular prism with fractional edge lengths.</p> <p>2. CR (DOK 1, 2)</p> <p>Prompt Features: The student is prompted to determine the volume of a right rectangular prism by packing it with unit cubes of the appropriate unit fraction edge lengths. Or the student is prompted to determine the volume of a right rectangular prism by applying the formulas $V = lwh$ and $V = bh$.</p> <p>Stimulus: The student is presented with a right rectangular prism with fractional edge lengths.</p> <p>3. SR (DOK 2)</p> <p>Prompt Features: The student is prompted to identify the three-dimensional figure that would be formed from a net.</p> <p>Stimulus: The student is presented with a net composed of rectangles, triangles, or a combination of the two in the context of a real-world or mathematical problem.</p> <p>4. SR (DOK 2)</p> <p>Prompt Features: The student is prompted to identify the surface area of the three-dimensional figure that would be formed from a net.</p> <p>Stimulus: The student is presented with a net composed of rectangles, triangles, or a combination of the two in the context of a real-world or mathematical problem.</p> <p>4. CR (DOK 2)</p> <p>Prompt Features: The student is prompted to determine the</p>
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	<p>surface area of the three-dimensional figure that would be formed from a net.</p> <p>Stimulus: The student is presented with a net composed of rectangles, triangles, or a combination of the two in the context of a real-world or mathematical problem.</p> <p>5. TE (DOK 2) Prompt Features: The student is prompted to draw polygons in the coordinate plane given coordinates for the vertices. Stimulus: The student is presented with the vertices of a polygon in the context of a real-world or mathematical problem. Interaction: The student uses a graphing tool to draw the polygon in the coordinate plane.</p> <p>6. SR (DOK 1) Prompt Features: The student is prompted to identify the length of a side of a polygon in the coordinate plane given coordinates for the vertices that have the same first coordinate or the same second coordinate. Stimulus: The student is presented with coordinates for the side of a polygon in the coordinate plane with either the same first coordinate or the same second coordinate.</p> <p>6. CR (DOK 1) Prompt Features: The student is prompted to determine the length of a side of a polygon in the coordinate plane given coordinates for the vertices that have the same first coordinate or the same second coordinate. Stimulus: The student is presented with coordinates for the side of a polygon in the coordinate plane with either the same first coordinate or the same second coordinate.</p> <p>7. SR (DOK 1) Prompt Features: The student is prompted to identify one or more missing coordinates in the coordinate plane that would complete the drawing of a polygon. Stimulus: The student is presented with the coordinates of some of the vertices of a polygon in the coordinate plane in the context of solving a real-world or mathematical problem.</p> <p>7. CR (DOK 1) Prompt Features: The student is prompted to determine one or more missing coordinates in the coordinate plane that would complete the drawing of a polygon. Stimulus: The student is presented with the coordinates of some of the vertices of a polygon in the coordinate plane in the context of solving a real-world or mathematical problem.</p>
Allowable Stimulus Materials:	coordinate planes, diagrams representing two- and three-dimensional figures
Allowable Disciplinary Vocabulary:	coordinate, ordered pair, coordinate plane, compose/decompose, vertices, right triangle, unit fraction, edge length, area, surface

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	area, volume, nets
Allowable Tools:	For some items, calculators may be used. For TE items, computer graphing software may be necessary.
Target-Specific Attributes:	Given dimensions should be positive integers, decimals, or fractions; radicals should not be used as given dimensions. Nets must only be composed of rectangles, triangles, or a combination of both.
Key Nontargeted Constructs:	
Accessibility Concerns:	Blind or low-vision students may have difficulty with aspects of this target related to coordinate planes and two- and three-dimensional diagrams.
Sample Items:	MAT.06.TE.1.0000G.H.071, MAT.06.TE.1.0000G.H.590

*SR = selected response item; CR = constructed response item; TE = technology-enhanced item; ER = extended-response item; PT = performance task