

## SD Common Core State Standards Disaggregated Math Template

<b>Domain:</b>	Geometry	<b>Cluster:</b>	Solve real-world and mathematical problems involving area, surface area, and volume	<b>Grade level:</b>	6
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Correlating Standard in Previous Year	Number Sequence & Standard	Correlating Standard in Following Year
NA	6.G.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	7.G.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Student Friendly Language:
<p>I can find the area of triangles.</p> <p>I can find the area of quadrilaterals.</p> <p>I can find the area of polygons by composing or decomposing them into rectangles, triangles, or other polygons.</p> <p>I can solve word problems involving area of triangles, quadrilaterals, and polygons.</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>Names of quadrilaterals</li> <li>Base and height of triangles</li> <li>Area is the number of square units inside a polygon</li> <li>Area formulas for triangles and quadrilaterals</li> </ul>	<p>Quadrilaterals are named based on their characteristics.</p> <p>Polygons can be decomposed or composed into other polygons to determine the number of square units inside a polygon, the area.</p>	<p>Name quadrilaterals.</p> <p>Find area of polygons to solve real-world problems.</p>

Key Vocabulary:												
<table border="0"> <tr> <td>area</td> <td>right triangle</td> <td>quadrilaterals</td> <td>squares</td> </tr> <tr> <td>parallelograms</td> <td>trapezoids</td> <td>rectangles</td> <td>base</td> </tr> <tr> <td>height</td> <td>rhombus</td> <td>decompose</td> <td>compose</td> </tr> </table>	area	right triangle	quadrilaterals	squares	parallelograms	trapezoids	rectangles	base	height	rhombus	decompose	compose
area	right triangle	quadrilaterals	squares									
parallelograms	trapezoids	rectangles	base									
height	rhombus	decompose	compose									
<p><b>Relevance and Applications:</b> How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?</p> <p>Calculate how much square footage you need to put new carpet your dining room.            Calculate square footage of your bedroom walls to determine how many gallons of paint you will need.            Calculate the area of your yard to purchase sod for your yard.</p>												

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<p>5.MD.5a-c Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p> <p>5.NF.4b Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.</p> <p>5.MD.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.</p> <p>A solid figure which can be packed without gaps or overlaps using <math>n</math> unit cubes is said to have a volume of <math>n</math> cubic units.</p> <p>5.MD.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.</p>	<p>6.G.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas <math>V = l w h</math> and <math>V = B h</math> to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.</p>	<p>7.G.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.</p>

### Student Friendly Language:

- I can find the volume of a rectangular prism with fractional edge lengths using unit cubes.
- I can find the volume of a right rectangular prism with fractional edge lengths using the volume formula.
- I can solve real world volume problems involving right rectangular prisms.

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>• Right rectangular prism volume formulas</li> </ul>	<p>Volume of a 3-dimensional shape is the number of cubes inside.</p> <p>Volume of a right rectangular prism with fractional edge lengths is found by multiplying the edges of the prism.</p>	<p>Find the volume of a right rectangular prism with fractional edge lengths by counting unit cubes.</p> <p>Apply the volume formulas (<math>V = lwh</math> and <math>V = bh</math>) to calculate the volume of right rectangular prisms with fractional edge lengths.</p> <p>Prove the formula for volume.</p>

### Key Vocabulary:

edges height	base area prism	fractional edge lengths volume	length right rectangular prism	width formula
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**Relevance and Applications:** How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question "why do I have to learn this"?

- Calculate how much water it will take to fill your swimming pool.
- Calculate the volume of a right rectangular water tower.
- Calculate the volume of a box to see how many boxes of baseballs would fit inside.
- Calculate the volume of a right rectangular prism fish tank.

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5.G.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	7.G.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

Student Friendly Language:
<p>I can plot ordered pairs on a coordinate plane and connect vertices to draw/create polygons.</p> <p>I can use the coordinates to find the length of the sides of polygons on a coordinate plane.</p> <p>I can solve real world problems involving lengths of sides of polygons.</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>• Ordered Pairs represent a location on a coordinate plane</li> </ul>	<p>Coordinates can be plotted and connected in a coordinate plane to form polygons.</p> <p>The length of a side of a polygon in a coordinate plane can be found using the coordinates with the same first or second coordinate.</p>	<p>Plot coordinates on a coordinate plane to make a polygon.</p> <p>Use the coordinates to find the length of the sides of a polygon in a coordinate plane in which the ordered pairs have the same first or second coordinate.</p>

Key Vocabulary:			
<u>ordered pairs</u>	coordinate plane	coordinates	length
<u>polygons</u>	<u>quadrants</u>	<u>vertices</u>	plot

Relevance and Applications: How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question "why do I have to learn this"?
<p>Create a coordinate grid to create landscape area in a backyard. Use the coordinates to find the perimeter of the yard. Use the coordinates to find distances between trees in the yard.</p> <p>Using an archaeological dig map, record the ordered pairs of the artifacts found. Find the length or width of each artifact using the coordinates.</p>

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NA	G.6.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	7.G.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids. 7.G.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

Student Friendly Language:
<p>I can make a net for a three-dimensional figure.</p> <p>I can use a net to find the surface area of a three-dimensional figure.</p> <p>I can solve real world problems involving surface area.</p>

Know (Factual)	Understand (Conceptual) The students will understand that:	Do (Procedural, Application, Extended Thinking)
<ul style="list-style-type: none"> <li>• Net is a two-dimensional figure</li> </ul>	<p>A three-dimensional figure can be drawn into a two-dimensional figure called a net.</p> <p>Surface area of a three-dimensional shape can be found using a net.</p>	<p>Draw a net of a three-dimensional figure.</p> <p>Find the surface area of a three-dimensional figure using the net.</p> <p>Create a two-dimensional model of a mathematical situation to find the surface area of a three-dimensional figure.</p>

Key Vocabulary:								
<table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">surface area</td> <td style="width: 25%;">base area</td> <td style="width: 25%;">length</td> <td style="width: 25%;">width</td> </tr> <tr> <td>height</td> <td>net</td> <td>three-dimensional</td> <td>two-dimensional</td> </tr> </table>	surface area	base area	length	width	height	net	three-dimensional	two-dimensional
surface area	base area	length	width					
height	net	three-dimensional	two-dimensional					
<p><b>Relevance and Applications:</b> How might the grade level expectation be applied at home, on the job or in a real-world, relevant context? Include at least one example stem for the conversation with students to answer the question “why do I have to learn this”?</p>								
<p>Make a pattern/net for a gift box.</p> <p>Find the amount of material you need to make a gift box.</p>								