

# Volume Project

## G.MG.3

You will design and construct a container that holds exactly  $\frac{1}{2}$  gallon of water. This project will be completed from start to finish in class. We will take three class periods to work on the containers: Period One – Computations and Begin Net; Periods Two – Complete Net & Begin Cutting; Period Three – Finish Cutting and Taping

Materials:                    One piece of poster board  
                                       Adhesive tape (Scotch, duct, packing, etc.) - NO GLUE  
                                       Scissors  
                                       Ruler & Protractor  
                                       Calculator

Method:

1. With a partner, decide what type of container you would like to create. You may choose from cones, cylinders, prisms, pyramids, or any combination of these figures. The only restriction is that the net of your figure must fit on one piece of poster board.
2. After deciding on your figure, you will need to determine the measurements necessary to make the figure the correct size. **\*\*Your work (computations, measurements and draft of the net) will be turned in for the computation part of your grade.\*\***
3. Once you have calculated your measurements, you will precisely draw your net on your piece of poster board. This poster board may not leave the classroom once you have started the project.
4. Cut out your net and tape your figure together. You may use any type of tape you prefer. The way you draw your net and subsequently cut out the net will affect the water held in your container more than the tape.
5. We will test your figure by pouring  $\frac{1}{2}$  gallon of water into it. One partner will hold the container while the other partner pours the water into the container.

Rubric:

<b>Computation</b>	<b>0-24</b> Major computational errors, for example: wrong formulas used, multiple mistakes in work, no work shown	<b>25-49</b> Minor computational errors, for example: using correct formulas but making arithmetic errors	<b>50</b> Correct volume formula is used, solving process clearly shown, and measurements produce a figure that holds 115.5 cubic inches/1892.7 cubic cm of water (one-half gallon).	____/50	
<b>Net/Draft</b>	<b>0-9</b> Missing or incomplete draft, or major labeling errors	<b>10-19</b> Net is drawn correctly, but measurements are incorrectly identified, or net has mistakes	<b>20</b> Net is drawn correctly with correct labeling and measurements	____/20	
<b>Final Product</b>	<b>0-19</b> Based on percent under/over half-gallon for correct amount of time (a container that leaks will lose points)		<b>20</b> Holds exactly half a gallon of water for 30 seconds (no or minimal leaking)	____/20	
<b>Difficulty</b>	<b>0</b> Square Based or Rectangular Prism	<b>3</b> Prism with Right Triangle base	<b>5</b> Cylinder	<b>10</b> Prism with base sides greater than 4 or Pyramid (Cone May Earn Additional Points)	____/10