

Lateral Area (LA), Total Surface Area (SA), and Volume

Tic-Tac-Toe Student Choice Activities

Standards/Objectives: TEK G.3B, G.1A, G.4, G.8D, G.8F

<p>1. Create a <u>children's storybook</u> that explains Lateral Area, Total Surface Area, and Volume. Include in the story line examples with pyramids, cones, and spheres.</p>	<p>2. Write a <u>newspaper or magazine article</u> comparing and contrasting Lateral Area, Surface Area, and Volume of prisms, pyramids and cones.</p> <p>Create a 2 page spread with pictures, captions, and Headings.</p>	<p>3. You have been hired as a project manager to create a <u>business proposal</u> for NASA. You need to choose the cylinder shape of blowers used to propel a Personal Satellite Assistant Robot with a 20-cm diameter.</p> <p>The blowers need to have the maximum surface area to release heat and will be mostly contained inside a PSA sphere, with only the tops exposed to the outside.</p> <p>Include mathematical justification for your business proposal.</p>
<p>4. NASA engineers had a computer of dimensions 6 cm x 4 cm x 1 cm. The computer company decided they wanted the engineers to design a computer with twice the power. Engineers decided they would simply double the volume of the computer, using twice as many components to double its capabilities.</p> <p>Create a <u>formal recommendation letter</u> to NASA for the dimensions you think they should double to maximize the surface area. In your proposal, consider what will happen to the surface area to volume ratio when doubling the volume.</p>	<p>5. (Required Activity)</p> <p>Complete the review sheets over LA, SA, and Volume</p>	<p>6. Design a <u>NEW</u> shape for a cereal box to hold 2 cups of cereal.</p> <p>Create a net for your cereal box and label it with exact measurements in centimeters (include the pieces that overlap to seal the box).</p> <p>Calculate the surface area and volume of the box once it is put together.</p> <p>If the material cost is \$0.10 for a 100 square centimeters of cardstock, calculate how much it will cost to create your box.</p>
<p>7. M&M is trying to choose a new package design. They can't decide between a cylinder or a square based prism that both have a SA of 1200 sq.cm</p> <p>Create a <u>newspaper editorial</u> arguing the most efficient package. Include mathematical proof of your reasoning.</p>	<p>8. Research a career that requires knowledge and skills related to finding LA, SA, and Volume.</p> <p>Make a flipbook describing the career and state how these math skills are used. Describe 2 sample situations of SA and volume.</p> <p>For each sample, include an outline of the real world math problem and calculations.</p>	<p>9. Create a package design to ship 12 Titleist golf balls that are 3 .8cm each. Write a <u>design proposal</u> for your supervisor explaining why your design is the best.</p> <p>Include surface area, costs, pros and cons and recommendations in your report.</p>

I/we chose activities # _____, # _____, and # _____.

Names _____ Due dates _____, _____, _____