



<p>Grades 5-8 (S), 9-12 (S)</p> <p>Duration: 10-20 min</p> <p>Tools: one Logifaces Set / class</p> <p>Individual work</p> <p>Keywords: Regular prism, Volume</p>	<h2>515 - Simple Volumes</h2>  <h3>MATHS / 3D GEOMETRY</h3>	 <p>LOGIFACES METHODOLOGY Erasmus+</p> <h1>TEACHER</h1> <p>Logifaces</p> <p>2019-1-HU01-KA201-0612722019-1</p>
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<p><b>DESCRIPTION</b></p> <p>Students calculate the volume of the different Logifaces blocks.</p> <p>For blocks 111, 222 or 333, the calculation of the volume is easy, since they have the shape of a regular prism. However for blocks with a shape of a truncated prism the task of calculating the volume is a little more complicated.</p> <p><b>LEVEL 1</b> Find the volumes of the blocks 111, 222 or 333.</p> <p><b>LEVEL 2</b> Find the volume of the blocks 123 or 132.</p>	
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<p><b>SOLUTIONS / EXAMPLES</b></p> <p><b>LEVEL 1</b> If the block is in the shape of a regular prism, the following volume formula is used:</p> $V = \frac{a^2\sqrt{3}}{4} \times h.$ <p>block 111: <math>V = \frac{4^2\sqrt{3}}{4} \times 1 = 4\sqrt{3} \approx 6.928</math></p> <p>block 222: <math>V = \frac{4^2\sqrt{3}}{4} \times 2 = 8\sqrt{3} \approx 13.856</math></p> <p>block 333: <math>V = \frac{4^2\sqrt{3}}{4} \times 3 = 12\sqrt{3} \approx 20.785</math></p> <p><b>LEVEL 2</b> Two blocks 123 form a regular prism 444. The volume of the regular prism is calculated by the formula above, which is twice the volume of the block.</p> <p>regular prism 444: <math>V = \frac{4^2\sqrt{3}}{4} \times 4 = 16\sqrt{3} \approx 27.713</math></p> <p>block 123 (and 132): <math>V = \frac{4^2\sqrt{3}}{4} \times 4 : 2 = 8\sqrt{3} \approx 13.856</math></p>	
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<p><b>PRIOR KNOWLEDGE</b></p> <p>Features and volume of solids (regular prism)</p>
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<p><b>RECOMMENDATIONS / COMMENTS</b></p> <p>Calculating the volume of other types of blocks is more difficult, see exercise <a href="#">516 - Truncated Volumes</a>.</p> <p>The calculations can be verified using GeoGebra, see exercise <a href="#">528 - Read the Results in GeoGebra</a>.</p>
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