

Grades 5 - 8

Duration: 20 min

Tools: one 16 pcs Set / 1 to 4 students, ruler, precision scale

Individual / Pair / Group work

Keywords: Precision scale, Average, Mass

## Density, Volume



**PHYSICS**



LOGIFACES  
METHODOLOGY  
Erasmus+

**TEACHER**  
Logifaces

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### DESCRIPTION

Students take the blocks and a precision scale with a resolution of 0.1 g and measure the weight of each type of block. They compare the measurements of each group. What is the average of your measurements for each block? Calculate the density of the beech wood material.

### SOLUTIONS / EXAMPLES

After measuring the weights of the blocks, calculate the volume of them using the formula

$V = \frac{1}{3}A(h_1 + h_2 + h_3)$  (see exercise [517 - Heights and Volumes](#) for the formula and the [Measurements of the logifaces blocks](#) for the results).

The results are listed in the table below.

Block	Volume (cm <sup>3</sup> )	Mass (g)
111	13.54	10
222	27.08	20
333	40.62	29
112	18.05	14
122	17.57	17
223	31.59	23
233	36.11	27
113	17.57	17
133	31.59	23
123, 132	27.08	20

Use the formula  $\rho = \frac{m}{V}$  to compute the density  $\rho$  of each block, where  $m$  stands for the mass and  $V$  for the volume of the block.. Remember to convert cubic centimetres to cubic metres. The density is approximately  $\rho = 0.74g/cm^3 = 740kg/m^3$  for each block.

PRIOR KNOWLEDGE

None

RECOMMENDATIONS / COMMENTS

Exercise [517 - Heights and Volumes](#) is recommended before this exercise to familiarise the students with calculation of volume.

Exercise [Pressure of Faces](#) is recommended after this exercise as a related Physics exercise.