

Science 9
Calculations of Pressure
Unit 2
Topic 5

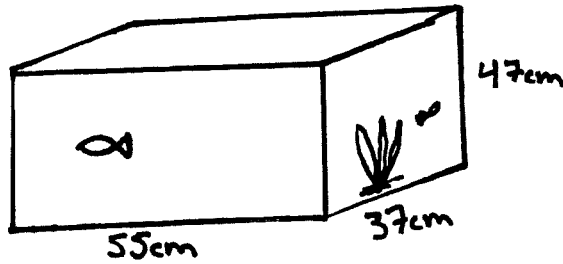
Pressure is a measure of how much force is being applied to a certain area. The smaller the area in contact the less force is needed to apply a greater force and visa verse.

The formula to calculate pressure is :

$$\text{Pressure} = \frac{\text{Force}}{\text{Area}} \text{ or } P = \frac{F}{A}$$

Pressure is found in newtons/metre²

Question: Calculate the pressure of the follow aquarium on the table. The table will hold 5kPa; is it strong enough for the tank?



Six steps are needed to calculate pressure

1. Volume $V=lwh$

2.) Mass of Water ($1\text{cm}^3 = 1 \text{ g}$)

"H₂O only"

3.) Pull of Gravity in newtons
($100\text{g} = 1 \text{ N}$)

4.) Surface area of bottom
($A=l*w$)

in m^2 *

5.) Pressure = F/A
units are N/m^2)

6.) Pressure in kPa

$1 \text{ N/m}^2 = 1 \text{ Pa} = 0.001 \text{ kPa}$