

All About Pressure in Fluids

Pressure...

- Pressure is the application of force to a surface .
- An example of applying pressure –
Punching a wall or blowing into a balloon.
- What are your examples of pressure?

How is pressure calculated?

- Pressure can be calculated using the following formula:

$$\textit{Pressure (P)} = \frac{\textit{Force (F)}}{\textit{Area (A)}}$$

OR

$$P = \frac{F}{A}$$

How is Pressure Measured?

- *Remember from Chapter 5 that force is measured in **NEWTONS!** Symbol = **N***
- *Also remember that area is measured in **METERS²** ! Symbol = **m²***
- *The unit for measuring pressure is, therefore, **N / m²** or **Pascal (Pa)***

Test Your Knowledge!!

- a) Suppose that an aquarium has a weight of 10,000 N and an area of 1m^2 . Determine the pressure exerted by the aquarium of water (in pascals and kilopascals).

Answer

- $P = \frac{F}{A} = \frac{10,000\text{N}}{1\text{m}^2} = 10,000 \text{ Pa or } 10\text{kPa}$