Pressure and Pascal’s Law

So much pressure, I can’t even lift!!!

Pressure is force over area. (N/m2)

P=F/A

Pascal’s Principle

Pressure is transmitted equally in all directions throughout a fluid.

This only applies when

* there is no pressure change
* it is in an enclosed fluid
* it is not incompressible fluids (aka not air)

Changing areas act as lever, taking advantage of Pascal’s Principe

* In both cases work must be done, but the work must be equal.
* Recall work = force x displacement.

W1=W2 W= Fd

F1d1=F2d2

We know the force will be amplified by this system, but because the work must be equal, the displacement will be inversely p⅞roportional to the force of each piston.

F1  < F2

then F1 ∝d1

The input will have to move much further than the output piston, but pushing with a lesser force. It’s like if the input piston was a marathoner, and output piston was Usain Bolt. The marathoner runs a much further distance, but at a slower pace, and the sprinter runs a very fast pace over a very short distance.