3. The weight of water in a glass is 4.9 N. If the water is exerting a pressure of 1700 Pa on the bottom of the glass, what is the area of the bottom of the glass?

$P = 1700\ Pa$

$F = 4.9\ N$

$A = ?$

$A = \frac{F}{P}$ $A = \frac{4.9\ N}{1700\ Pa}$

$A = 0.0029\ m^2$

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

On the computer compared pressure, temperature and volume

https://phet.colorado.edu/en/simulation/legacy/gas-properties

Pressure and Particle Theory

Particles in solid, liquid and gas are constantly moving. When we increase energy(temp) then particles move faster and when we decrease energy (temp) then particles move slower. When they move the particles bump into each other spreading them out and leaving more space between them.

Moving particles exert force in the direction of their motion. Most of the forces cancel out each other, but some are not canceled. These forces are exerted against the wall of the container, causing pressure. Thus when there is a crack or hole on the container the fluid will flow out. This indicates that the pressure of a fluid is exerted equally in all directions, as shown below.

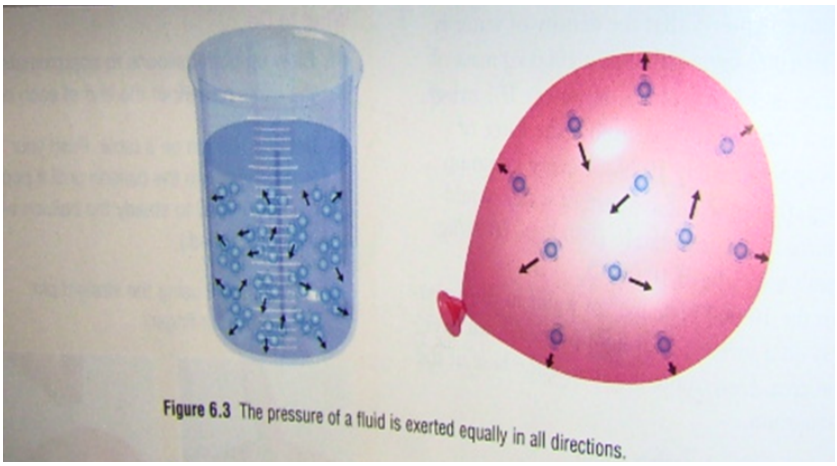


Figure 6.3 The pressure of a fluid is exerted equally in all directions.

Spaces Between Particles

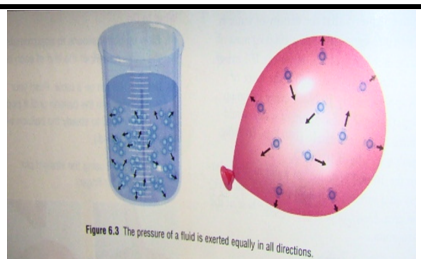
Space between particles depends on 2 factors:

1) the physical state of the substance (solid, liquid, or gas)

2) the amount of energy that the particles have

Since gas particles are spread out they have lots of space between particles, thus gases are compressible.

Compressible - is the ability to be squeezed into a smaller volume



When force is applied to a solid or liquid the particles within cannot move closer so they transmitted (pass along) the force like the domino effect. They are **incompressible.**

Gases are easiest to compress, solids most difficult | Compressibility | Chemistry