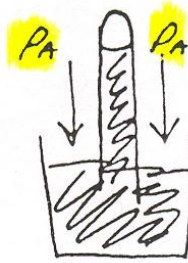


Demo: What holds up the water in the test tube?



The **atmospheric pressure (P_A)** holds up (supports) the column of water in the test tube.

Aim: What is atmospheric pressure (P_A) & how is it measured?

Let's break it down.

1) **Atmospheric Pressure**

A measure of its **force** pressing upon us.

The "ocean" of **air** that we live in.



Demo: It works even without the beaker of water b/c the P_A is pushing in all directions.



piece of wet paper

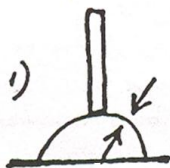
2) Why don't we feel it?

We don't feel the P_A b/c it's **equalized** in & out of our bodies.



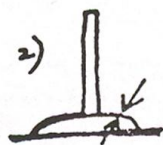
Demo: How does a suction cup work?

It squeezes the air out of the cup & prevents it from returning so that the pressure inside of the cup is less than the pressure outside.



$$P_{IN} = P_{OUT}$$

It doesn't stick.

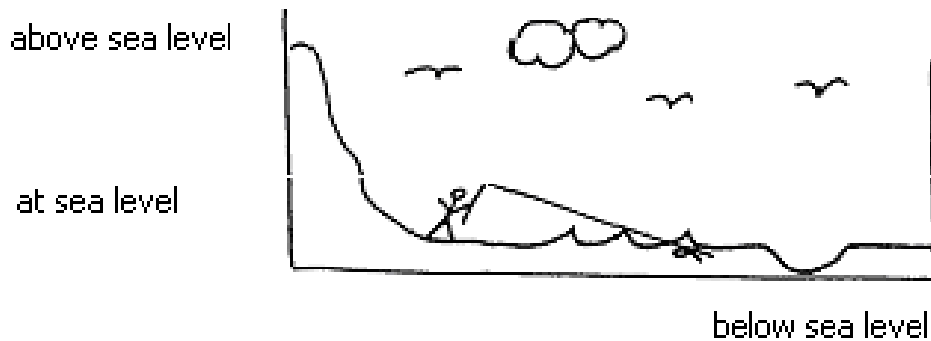


$$P_{OUT} > P_{IN}$$

It sticks.

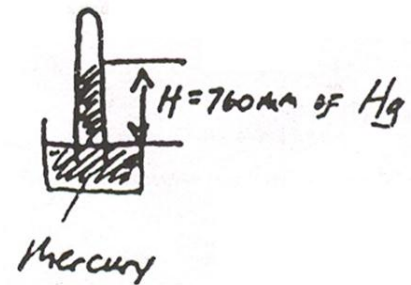
And, it sticks better when wet because the water prevents the air from getting back in.

3) How does atmospheric pressure change with altitude?



So, higher altitude, lower atmospheric pressure.

4) Mercury barometer – an instrument that measure P_A

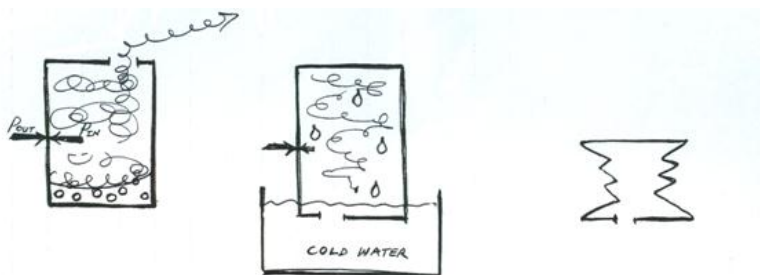


Refer to TABLE A,

Standard (Normal) P_A supports a column of mercury that is **760 mm** high.

So, $101.3 \text{ kPa} = 1 \text{ atm} = 760 \text{ mm Hg (torr)}$

Demo: the imploding can



It's crushed by the P_A b/c when the steam inside the can condenses, the P_{in} is less than P_{out} .