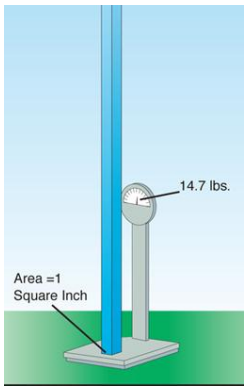
Atmospheric Pressure

The atmosphere is the blanket of gases which surrounds Earth. It is held to the surface of the planet by gravitational attraction.

The atmosphere is made up of a mixture of gases, mostly nitrogen, oxygen, argon and carbon dioxide. It reaches over 500km above the surface of the planet. There is no exact boundary between the atmosphere and outer space. Atmospheric gases become thinner the higher up you go. The atmosphere just keeps getting less and less dense, until it "blends" into outer space.

Atmospheric Pressure is pressure due to the weight of the atmosphere. This weight will vary depending on how high up in the atmosphere the reading is taken and so a reading at sea level will be therefore greater than a reading taken on the top of Mount Everest.



If it were possible to take a column of Atmosphere 1" x 1" extending to the top of the atmosphere and to put this column onto a weighing scales at sea level then the weighing scales would read 14.7 lbs (approx 6.6Kg) Therefore we can say that atmospheric pressure at sea level is 14.7pounds per square inch or 14.7 psi.

Atmospheric pressure can vary slightly due to the ever shifting air masses and the changing density of air. Looking at the weather maps you can see small changes from day to day from what is called *low pressure* to *high pressure* and back again to low pressure. But these changes are only small and by and large the *nominal value* for atmospheric pressure remains at 14.7psi.

For humans it is comfortable to breathe in an environment of 14.7psi, or as we say *at atmospheric pressure*. However, as we gain altitude then atmospheric pressure reduces and the atmosphere becomes *rare* or *thin*. This has implications for high altitude climbers, engines performing at altitude and necessitates the need for *cabin pressurization* in jet liners.

Note that the nominal value of 14.7psi for Atmospheric pressure may also be expressed in other units of pressure measurement as shown below.

1 Atmosphere =	14.7 psi
	101,325 Pascal's
	1.01325 Bar
	1,013.25 mBar
	29.9213" HG
	760 mm
	760 Torr
	0% Vacuum

Notice from the table above that anything below 1013.25 mBar is referred to as low pressure on weather maps and anything above is referred to as high pressure.

The Vacuum Range exists from atmospheric pressure or 1 atmosphere which is 0% vacuum, back to 0 atmospheres, which is the same pressure at the top of the atmosphere or outer space and is 100% vacuum.