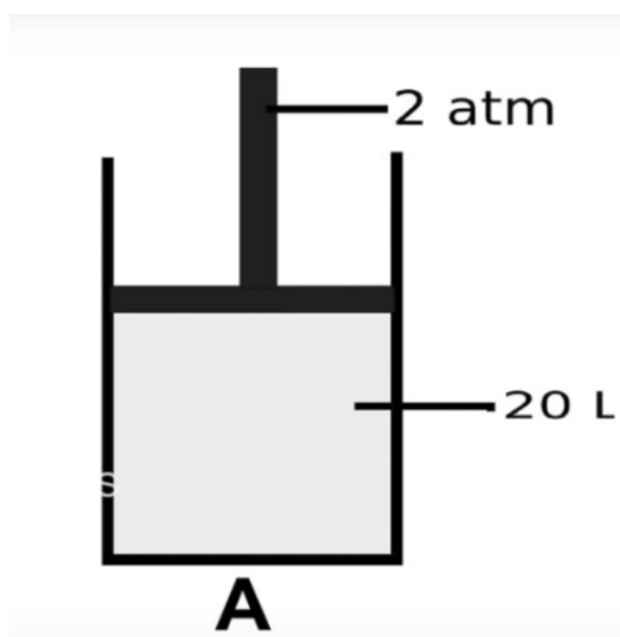# SSLC Chemistry- Class-11
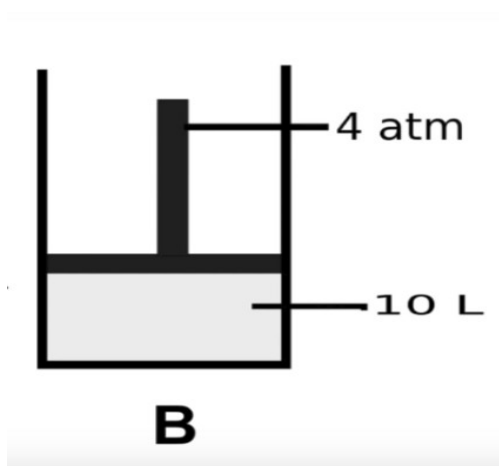
Gas Laws and Mole Concept

Volume and pressure

A gas is taken in a closed container as mentioned in the figure. Temperature is kept constant.

Here the pressure applied is 2atm and volume is 20L .
When we increase the pressure from 2atm to 4atm, it's volume decreases from 20L to 10L as shown in the figure.

That is, when pressure increases volume decreases at constant temperature.

When pressure decreases volume increases at constant temperature.

It is Robert Boyle who established the relationship between volume and pressure of a gas through experiments.

This relation is known as Boyle's Law.

Boyle's Law

At a constant temperature, volume of a definite mass of gas is inversely proportional to its pressure. If P is the pressure and V the volume, then P x V is a constant.

Let's find P X V in the above example.

Cylinder	Pressure	Volume	P x V
A	2	20	40
B	4	10	40

P x V is a constant.

Questions

1. Analyse the situation given below and explain the gas law associated.

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The size of the air bubbles rising from the bottom of an aquarium increases.

2 . Analyse the table and answer the following questions.

Pressure (atm)	Volume (L)	PV
1	1000	1000
2	500	1000
4	a	b
c	200	d

a) Find the values of a,b,c,d .

b). What is the relation between volume and pressure ?

c). Which is the gas law related to this ? State the law ?

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