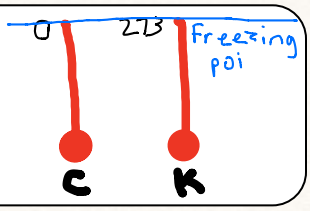
Visual Dictionary

Chapter #: 2 **Topic:** Gas Laws

WORD
Absolute temperature scale

Interesting Fact
The Kelvin scale is used to measure absolute temperature

Picture or Example

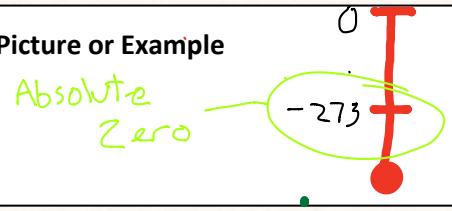


Where absolute zero in K (kelvin) is equal to the tempeture in Celsius is equal to Kelvin if 273 is added.

WORD
Absolute Zero

Interesting Fact
Absolute Zero is the lowest temperature possible.

Picture or Example

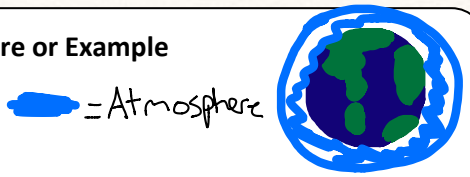


The lowest possible temp. (-273C or 0K)

WORD
Atmospheric pressure

Interesting Fact
Atmosphere is tied to Earth by gravitation, so that it cannot disperse in the space. It is 500 km (300 mi) thick, being made

Picture or Example



The force exerted on all things by air.

WORD
Avogrado's theory

Interesting Fact
6.0221415 × 1023. Written out, that's 602,214,150,000,000, 000,000,000

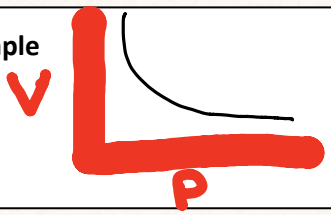
Picture or Example

Equal volume of gases at the same temperature and pressure contain equal numbers of molecules.

WORD
Boyle's Law

Interesting Fact
The law was first stated in 1662 by Robert Boyle. In 1676, Edme Mariotte of France independently stated the same law, and it is sometimes called Mariotte's Law.

Picture or Example



As pressure on a gas increases, the volume of the gas decreases proportionally, provided that the temp amount of gas remains constant. (P1V1=P2V2)

Visual Dictionary

Name: Christabel **Chapter #:** 2 **Topic:** Gas Laws

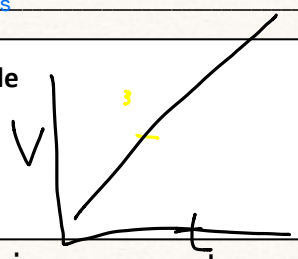
WORD

Charles's law

Interesting Fact

The reason this law was invented was because scientists Jacques Charles and Joseph-Louis Gay-Lussac, were eager to improve the performance of hot air balloons. ,

Picture or Example



As the absolute temp of gas increases, the volume increases increases at an equal rate, of the pressure remains constant.

WORD

Combined gas Law

Interesting Fact

Combined gas law brings all the laws together.

Picture or Example

Vi = 10 L, Pi = 80 kPa, Ti = 200 K, Vf = 20 L, Tf = 220 kPa

Step 1: Substitute the values in the below pressure equation:

Final Pressure(Pf) = PiViTf / TiVf

= (80 x 10 x 220) / (200 x 20)

= 176000 / 4000

Final Pressure(Vf) = 44 kPa

The product of pressure and volume is proportional to absolute Temp in Kelvin (P1V1/T1=P2V2/T2)

WORD

Ideal gas

Interesting Fact

Picture or Example

An ideal gas is a theoretical gas composed of a set of randomly moving, non-interacting point particles.Many gases such as air, nitrogen, oxygen, hydrogen, noble gases, and some heavier gases like carbon dioxide can be treated like ideal gases

A gas that obeys all gas laws perfectly

WORD

Ideal gas law

Interesting Fact

An ideal gas will always equal 1 when plugged into its equation.

Picture or Example **PV=nRT**

Pressure x volume= number of moles x gas constant x temperature.

PV=nRT

WORD

Law of combining volumes

Interesting Fact

when gases react together to form other gases, and all volumes are measured at the same temperature and pressure:

Picture or Example

$N_2 + 3H_2 = 2NH_3$

When measured at same temperature, reactants and products will be in simple ratios of whole numbers.

Visual Dictionary

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Molar volume

Interesting Fact

The ideal gas equation can be rearranged to give an expression for the molar volume of an ideal gas.

Picture or Example

22.4L

Volume occupied by one mole of

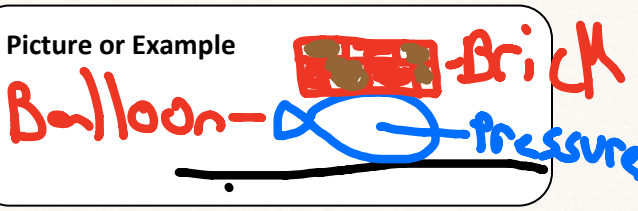
WORD

Pressure

Interesting Fact

Pressure is always existent.

Picture or Example



The force per unit measured in pascals.

WORD

SATP

Interesting Fact

Good practice is to always incorporate the reference conditions of temperature and pressure.

Picture or Example

Standard Ambient Temperature and Pressure.

WORD

STP

Interesting Fact

STP commonly is used when standard state conditions are applied to calculations.

Picture or Example

Standard Temperature and Pressure.

WORD

Universal gas constant

Interesting Fact

The universal gas constant is denoted by the symbol R.

Picture or Example

R=8.314

The constant used in the ideal gas law; usually 8.314kPa/L or mol*K