

DICTOGLOSS

The pH scale is the scale that measures the relative acidity or alkalinity of a solution. Solutions are measured from zero (totally acid) to fourteen (totally alkaline), and seven is neutral. pH is an abbreviation for 'potential of hydrogen'.

The pH scale is a logarithmic scale. In a logarithmic scale, a change of pH from 4 to 2 means that the substance is 100 times more acidic; if there's a change of pH is from 9 to 12, it means that the substance is 1000 times more alkaline.

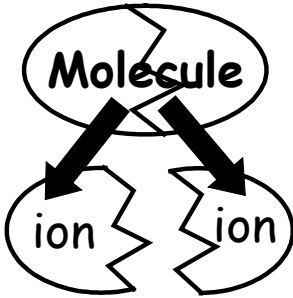
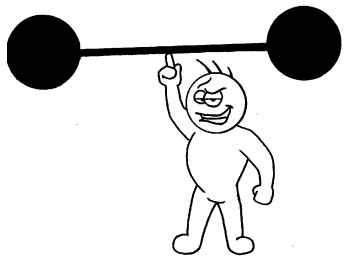
When an acid dissolves in water, its molecules break up to form ions. They always GIVE hydrogen ions. On the other hand, when an alkali dissolves in water, its molecules ACCEPT hydrogen ions. Then, we can define an acid as a hydrogen ion donor, and an alkali as a hydrogen ion acceptor.

The numbers in the pH scale are a measure of the concentration of hydrogen ions in a solution. The more hydrogen ions, the more acidic is the solution and the lower the pH value. The less hydrogen ions, the more alkaline is the solution and the higher the pH value.

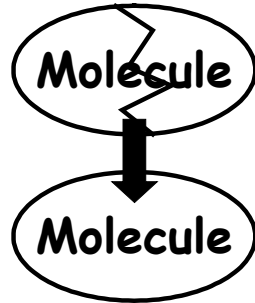
In a strong acid, nearly all the acid molecules break up to form ions in a solution. But in a weak acid, only some of the acid molecules form ions in a solution. The same applies to alkalis. A strong alkali is strong because it exists almost completely as ions in solution. On the other hand, a weak alkali is weak because only some of its molecules form ions in solution.

Hydrochloric acid, which we can find in our stomachs, is a strong acid. Acetic acid, which we can find in vinegar, is a weak acid. Sodium hydroxide, which is used to make soap, is a strong alkali. Ammonia, which we can find in many detergents, is a weak alkali.

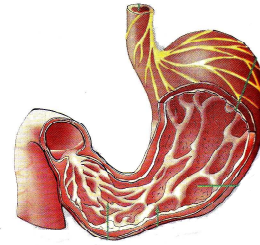
There are two ways to measure the pH: one is using indicators such as the Universal Indicator which impregnates the pH paper, the other one is using an electronic instrument called pH meter.



Many molecules break



Many molecules don't break



HCl



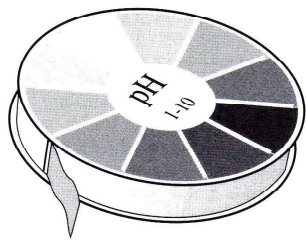
CH₃COOH



NaOH

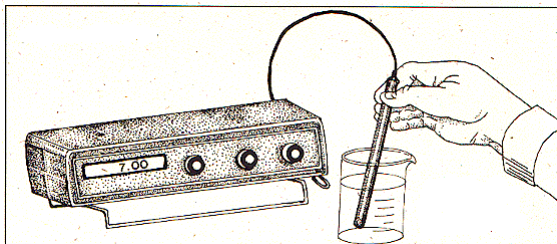


NH₃

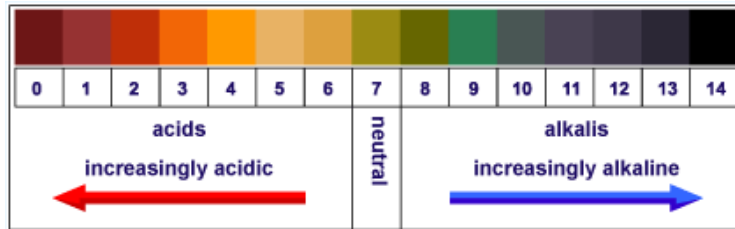


pH paper

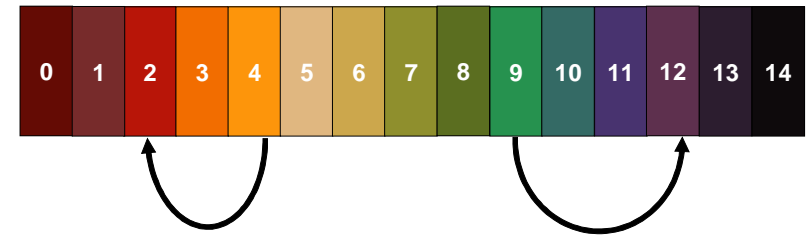
pH meter



The pH scale

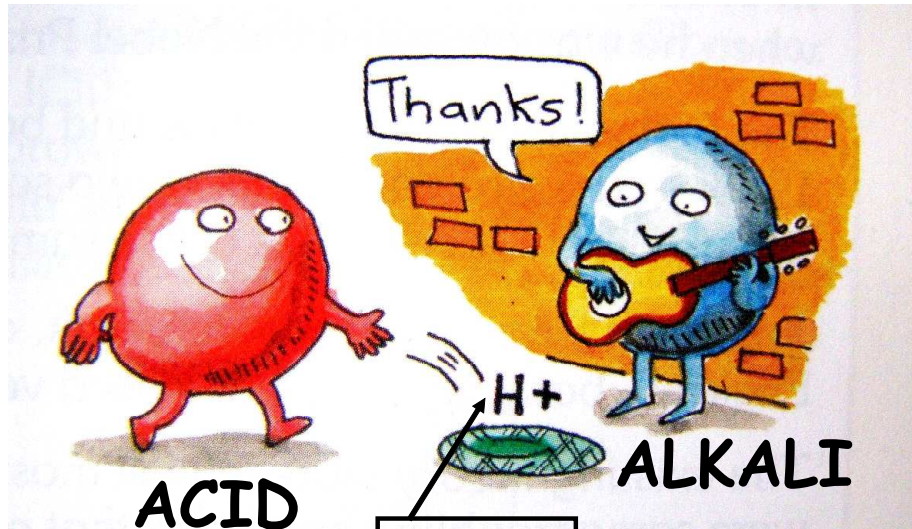


Logarithmic scale



The substance is 100 times more acidic.

The substance is 1000 times more alkaline.

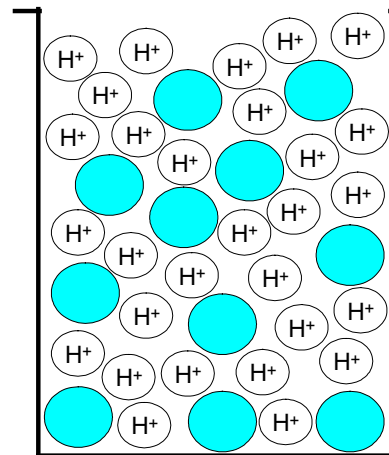


ACID

ALKALI

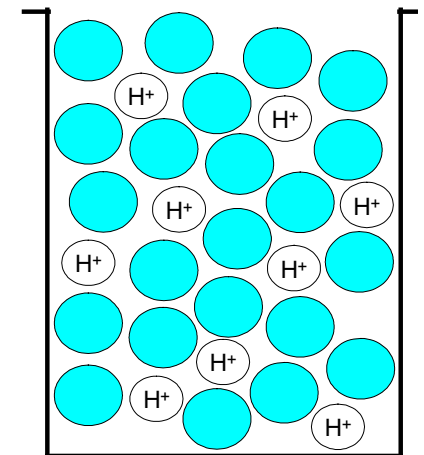
Hydrogen ion

● = other molecules



VERY ACIDIC

small pH



VERY ALKALINE

BIG pH