



## **Acids and Bases**

**Chemistry – Leaving Cert**

**Quick Notes**

## Acids and Bases

The Arrhenius definition of an acid is a substance that dissociates in water to produce  $H^+$  ions. A strong acid completely dissociates in aqueous solution and a monobasic acid releases one proton ion per molecule, a dibasic acid releases two protons per molecule etc. e.g. HCl is a monobasic acid, sulfuric acid is a dibasic acid. The Arrhenius definition of a base is a substance that dissociates in water to produce  $OH^-$  ions. An alkali is a base dissolved in water. Strong bases are those that completely dissociate in water. The Bronsted-Lowry definition are: an acid is a proton donor and a base is a proton acceptor. An amphoteric substance can act as either an acid or a base e.g. water. A conjugate acid-base pair is any pair consisting of an acid and a base which differ by one proton. Once an acid has lost a proton, it becomes capable of accepting a proton back again so it becomes a conjugate base. In a similar manner, conjugate acids are formed. To find the conjugate acid of a substance, add a  $H^+$  ion to it and to find the conjugate base of a species, remove a  $H^+$  ion from it. A strong acid has a great tendency to lose a proton, therefore its conjugate base will be weak and vice versa, a weak acid has a strong conjugate base. Neutralisation is the reaction between an acid and a base to form a salt and water. A salt is the substance formed when the hydrogen atom in an acid is replaced by a metal or ammonium ion. An everyday example of neutralisation is lime being added to neutralise the acidity in soil.