Acids and Bases ...Salts...

Type of Salt	Examples	Comment	pH of solution
Cation is from a strong base, anion from a strong acid	KCI, KNO3 NaCl NaNO3	Both ions are neutral	Neutral

These salts simply dissociate in water: $KCl(s) \rightarrow K^{+}(aq) + Cl^{-}(aq)$

Type of Salt	Examples	Comment	pH of solution
Cation is from a strong base, anion from a weak acid	NaC ₂ H ₃ O ₂ KCN, NaF	Cation is neutral, Anion is basic	Basic

The basic anion can accept a proton from water:

$C_2H_3O_2^{-1}$	+	$H_2O \leftrightarrows$	$HC_2H_3O_2$	+	OH-
base		acid	acid		base

Type of Salt	Examples	Comment	pH of solution
Cation is the conjugate acid of a weak base, anion is from a strong acid	NH₄CI, NH₄NO₃	Cation is acidic, Anion is neutral	Acidic

The acidic cation can act as a proton donor:

$NH_4^+(aq) \leftrightarrows$	NH ₃ (aq)	+	H⁺(aq)
Acid	Conjugate		Proton
	base		

Type of Salt	Examples	Comment	pH of solution
Cation is the conjugate acid of a weak base, anion is conjugate base of a weak acid	$NH_4C_2H_3O_2$ NH_4CN	Cation is acidic, Anion is basic	See below

- IF K_a for the acidic ion is greater than K_b for the basic ion, the solution is acidic
 IF K_b for the basic ion is greater than K_a for the acidic ion, the solution is basic
- > IF K_b for the basic ion is equal to K_a for the acidic ion, the solution is neutral

Type of Salt	Examples	Comment	pH of solution
Cation is a highly charged metal ion; Anion is from strong acid	Al(NO3)3 FeCl3	Hydrated cation acts as an acid; Anion is neutral	Acidic

Step #1:AlCl_3(s) + $6H_2O \rightarrow Al(H_2O)_6^{3+}(aq) + Cl^{-}(aq)$ SaltwaterComplex ion

Effect of Structure on Acid-Base Properties

