Solubility Rules

SOLUBLE COMPOUNDS	INSOLUBLE COMPOUNDS
compounds of Group 1 elements	carbonates(CO_3^{2-}) except those of Group I elements and NH_4^+
ammonium(NH_4^+) compounds	oxalates($C_2O_4^{2-}$) except those of Group I elements and NH_4^+
chlorides(Cl^-), bromides(Br^-), iodides(I^-) except those of Ag^+, Hg_2^{2+}, and Pb^{2+}	phosphates(PO_4^{3-}) except those of Group I elements and NH_4^+
nitrates(NO_3^-), acetates($C_2H_3O_2^-$), chlorates(ClO_3^-) and perchlorates(ClO_4^-)	sulfides(S^{2-}) except those of Group 1 and 2 elements and NH_4^+
sulfates(SO_4^{2-}) except those of Ca^{2+}, Sr^{2+}, Ba^{2+}, Pb^{2+}, Hg_2^{2+} and Ag^+	hydroxides(OH^-) except those of Group 1 and 2 elements and NH_4^+

Soluble ionic compounds in water will dissociate to give the individual cations and anions. (Strong electrolytes)

Strong Acids & Bases in Water

STRONG ACIDS	STRONG BASES
hydrochloric acid, HCl(aq)	lithium hydroxide, LiOH (aq)
hydrobromic acid, HBr(aq)	sodium hydroxide, NaOH (aq)
hydroiodic acid, HI(aq)	potassium hydroxide, KOH (aq)
nitric acid, HNO_3(aq)	Ca hydroxide, $Ca(OH)_2$ (aq)
sulfuric acid, H_2SO_4(aq) (to HSO_4^-(aq))	Sr hydroxide, $Sr(OH)_2$ (aq)
perchloric acid, $HClO_4$ (aq)	Ba hydroxide, $Ba(OH)_2$ (aq)

Strong acids and bases in water will dissociate to give the individual cations and anions. (Strong electrolytes)

Weak Acids & Bases in Water

WEAK ACIDS	WEAK BASES
phosphoric acid, H_3PO_4(aq)	ammonia, NH_3(aq)
organic acids, R-CO_2H	organic amines, R-NH_2

Weak acids and bases in water will partially react with water to give a small percentage of cations and anions (weak electrolyte), but most of the compound will remain in its original form.