Solubility Rules for some ionic compounds in water

	Soluble Ionic Compounds
1.	All sodium (Na^+), potassium (K^+) and ammonium (NH_4^+) salts are SOLUBLE.
2.	All nitrate (NO_3^-), acetate ($CH_3CO_2^-$), chlorate (ClO_3^-), and perchlorate (ClO_4^-) salts are SOLUBLE.
3.	All chloride (Cl^-), bromide (Br^-), and iodide (I^-) salts are SOLUBLE - EXCEPT those also containing: lead, silver, or mercury (I), (Pb^{+2}, Ag^+, Hg_2^{+2}) which are NOT soluble.
4.	All fluoride (F^-) salts are SOLUBLE - EXCEPT those also containing: magnesium, calcium, strontium, barium, or lead (Mg^{+2}, Ca^{+2}, Sr^{+2}, Ba^{+2}, Pb^{+2}) which are NOT soluble.
5.	All sulfate (SO_4^{-2}) salts are SOLUBLE - EXCEPT those also containing: calcium, silver, mercury (I), strontium, barium, or lead (Ca^{+2}, Ag^+, Hg_2^{+2}, Sr^{+2}, Ba^{+2}, Pb^{+2}), which are NOT soluble.
	Not Soluble Ionic Compounds
6.	Hydroxide (OH^-) and oxide (O^{-2}) compounds are NOT SOLUBLE - EXCEPT those also containing: sodium, potassium or barium (Na^+, K^+, Ba^{+2}), which are soluble.
7.	Sulfide (S^{-2}) salts are NOT SOLUBLE - EXCEPT those also containing: sodium, potassium, ammonium, or barium (Na^+, K^+, NH_4^+, Ba^{+2}), which are soluble.
8.	Carbonate (CO_3^{-2}) and phosphate (PO_4^{-3}) salts are NOT SOLUBLE EXCEPT those also containing: sodium, potassium or ammonium (Na^+, K^+, NH_4^+) which are soluble.

4.3 … Net Ionic Equations … Acids and Bases … Example 1

$$HBr(aq) + KOH(aq) = Salt + Water$$

1. Write the formula for the products and determine from 'Solubility Guidelines' whether the salt is soluble or not.

2. Balance the chemical equation.

3. Identify the components that are actually in solution.
   Is the acid a strong one, if so it dissociates to produce H^+ and what remains of the formula is the anion.
   Is the acid a weak one, if so it remains essentially undissociated in solution.

4. Remove the spectator ions.

5. What remains is the 'Net Ionic Equation'.