Solubility Guidelines		
1	Compounds containing an alkali metal cation (Li^+,Na^+,K^+,Rb^+,Cs^+) Or the ammonium ion (NH_4^+) are water soluble (aq)	
2	Compounds containing the nitrate ion (NO_3^-), acetate ion ($C_2H_3O_2^-$), or chlorate ion (ClO_3^-) are water soluble (aq)	
3	Compounds containing the chloride ion (Cl^-) bromide ion (Br^-), or iodide ion (I^-) are water soluble (aq)	Except: Compounds containing Ag^+,Hg_2^{2+} or Pb^{2+}
4	Compounds containing the sulfate ion (SO_4^{2-}) are water soluble (aq)	Except: Compounds containing Ag^+,Hg_2^{2+},Pb^{2+},Ca^{2+},Sr^{2+} or Ba^{2+}
5	Compounds containing the carbonate ion (CO_3^{2-}), phosphate ion (PO_4^{3-}), chromate ion (CrO_4^{2-}) or sulfide ion (S^{2-}) are insoluble in water. (s)	Except: Compounds containing Li^+,Na^+,K^+,Rb^+,Cs^+ or NH_4^+
6	Compounds containing the hydroxide ion (OH^-) are insoluble in water (s)	Except: Compounds containing Li^+,Na^+,K^+,Rb^+,Cs^+,NH_4^+ or Ba^{2+}

Metal activity series

React vigorously with cold H_2O to form H_2 gas	Lithium	Li^+
	Potassium	K^+
	Barium	Ba^{2+}
	Calcium	Ca^{2+}
	Sodium	Na^+
React with steam to form H_2	Magnesium	Mg^{2+}
	Aluminum	Al^{3+}
	Manganese	Mn^{2+}
	Zinc	Zn^{2+}
	Chromium	Cr^{3+}
	Iron	Fe^{2+}
React with simple acids to form H_2	Cadmium	Cd^{2+}
	Cobalt	Co^{2+}
	Nickel	Ni^{2+}
	Tin	Sn^{2+}
	Lead	Pb^{2+}
	Hydrogen	H^+
Will not dissolve in simple acids	Copper	Cu^{2+}
	Silver	Ag^+
	Mercury	Hg^{2+}
	Platinum	Pt^{2+}
	Gold	Au^+

Halogen Activity series

F
Cl
Br
I
At

Assigning oxidation Numbers

1. Free elements in their uncombined state have an oxidation number of zero.
2. In monoatomic ions, the oxidation number is equal to the charge of the ion.
3. The oxidation number of oxygen is usually -2. In peroxides like H_2O_2 it is -1.
4. The oxidation number of hydrogen is +1 except when it is bonded to metals in binary compounds. In these cases. Its oxidation number is -1
5. Group 1 metals are +1, group 2 metals are +2 and fluorine is always -1.
6. The sum of the oxidation numbers of all the atoms in a molecule or ion is equal to the charge on the molecule or ion.
7. Oxidation numbers do not have to be integers (but they usually are). The oxidation number of oxygen in the superoxide ion, O_2^-, is -1/2.

The Oxidation Numbers of Elements in their Compounds

1 1A																	18 8A
1 **H** +1 −1	2 2A											13 3A	14 4A	15 5A	16 6A	17 7A	2 **He**
3 **Li** +1	4 **Be** +2											5 **B** +3	6 **C** +4 +2 −4	7 **N** +5 +4 +3 +2 +1 −3	8 **O** +2 −1 −2	9 **F** −1	10 **Ne**
11 **Na** +1	12 **Mg** +2	3 3B	4 4B	5 5B	6 6B	7 7B	8	9 8B	10	11 1B	12 2B	13 **Al** +3	14 **Si** +4 −4	15 **P** +5 +3 −3	16 **S** +6 +4 −2	17 **Cl** +7 +6 +5 +4 +3 +1 −1	18 **Ar**
19 **K** +1	20 **Ca** +2	21 **Sc** +3	22 **Ti** +4 +3 +2	23 **V** +5 +4 +3 +2	24 **Cr** +6 +5 +4 +3 +2	25 **Mn** +7 +6 +4 +3 +2	26 **Fe** +3 +2	27 **Co** +3 +2	28 **Ni** +2	29 **Cu** +2 +1	30 **Zn** +2	31 **Ga** +3	32 **Ge** +4 −4	33 **As** +5 +3 −3	34 **Se** +6 +4 −2	35 **Br** +5 +3 +1 −1	36 **Kr** +4 +2
37 **Rb** +1	38 **Sr** +2	39 **Y** +3	40 **Zr** +4	41 **Nb** +5 +4	42 **Mo** +6 +4 +3	43 **Tc** +7 +6 +4	44 **Ru** +8 +6 +4 +3	45 **Rh** +4 +3 +2	46 **Pd** +4 +2	47 **Ag** +1	48 **Cd** +2	49 **In** +3	50 **Sn** +4 +2	51 **Sb** +5 +3 −3	52 **Te** +6 +4 −2	53 **I** +7 +5 +1 −1	54 **Xe** +6 +4 +2
55 **Cs** +1	56 **Ba** +2	57 **La** +3	72 **Hf** +4	73 **Ta** +5	74 **W** +6 +4	75 **Re** +7 +6 +4	76 **Os** +8 +4	77 **Ir** +4 +3	78 **Pt** +4 +2	79 **Au** +3 +1	80 **Hg** +2 +1	81 **Tl** +3 +1	82 **Pb** +4 +2	83 **Bi** +5 +3	84 **Po** +2	85 **At** −1	86 **Rn**