**Things You Just Have to Memorize**

There are some things that you MUST memorize in AP Chemistry. Here is a starting list.

**Element Names & Symbols**

*The periodic table you get has symbols & #’s, but no names*

* Know the name & symbol for the 1st 38 elements ***AND*** Ag, Cd, Sn, I, Xe, Cs, Ba, Pt, Au, Hg, Pb, Bi, Rn, U

 **Polyatomic Ions**

*Know name, formula, and charge*

**Positive Ions (Cations)**

|  |  |  |
| --- | --- | --- |
| **1+** | **2+** | **3+** |
| * Ammonium (NH4+)
* Silver (Ag+)
* Hydronium (H3O+)
 | * Cadmium (Cd2+)
* Zinc (Zn2+)
 | * Aluminum (Al3+)
 |

**Negative Ions (Anions)**

|  |  |  |
| --- | --- | --- |
| **1-** | **2-** | **3-** |
| * Acetate (C2H3O2-)
* Chlorate (ClO3-)
* Chlorite (ClO2-)
* Cyanide (CN-)
* Hydride (H-)
* Hydrogen carbonate or bicarbonate (HCO3-)
* Hydrogen sulfite or bisulfite (HSO3-)
* Hydroxide (OH-)
* Nitrate (NO3-)
* Nitrite (NO2-)
* Perchlorate (ClO4-)
* Permanganate (MnO4-)
* Thiocyanate (SCN-)
 | Carbonate (CO32-)Chromate (CrO42-)Dichromate (Cr2O72-)Peroxide (O22-)Sulfate (SO42-)Sulfite (SO32-)Oxalate (C2O42-) | Phosphate (PO43-)Phosphite (PO33-) |

 **Solubility Rules:**

All sodium, potassium, ammonium, and nitrate salts are soluble in water.

 **Periodic Table Patterns**

* Groups: noble gases, halogens, alkaline metals, alkaline earth metals, transition metals
* Trends: atomic radius, ionic radius, ionization energy, electronegativity

**The 7 Diatomic Elements**

* These are diatomic when they are alone as a neutral element (not in a compound, not as an ion)
* Remember: Start at #7 and make a 7
	+ Hydrogen (H2); Nitrogen (N2); Oxygen (O2); Fluorine (F2); Chlorine (Cl2); Bromine (Br2); Iodine (I2)

**Metric Prefixes**

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**Rules for Assigning Oxidation States**

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**Thermodynamic quantities**

**Molecular Geometry: shapes & bond angles**

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**Straight line plots**



**Strong Acids and Bases**

|  |  |
| --- | --- |
| The 7 Strong Acids •HNO3 nitric acid•H2SO4 sulfuric acid•HBr hydrobromic acid •HI hydroiodic acid•HCl hydrochloric acid•HClO3 chloric acid•HClO4 perchloric acid | The 8 Strong Bases •LiOH lithium hydroxide •NaOH sodium hydroxide •KOH potassium hydroxide •RbOH rubidium hydroxide•CsOH cesium hydroxide•Ca(OH)2 calcium hydroxide •Sr(OH)2 strontium hydroxide •Ba(OH)2 barium hydroxide |