| Common polyatomic ions | |
|---|---|
| ammonium | $NH_4^+$ |
| acetate | $CH_3COO^-$ |
| carbonate | $CO_3^{2-}$ |
| hydrogen carbonate (bicarbonate) | $HCO_3^-$ |
| hydroxide | $OH^-$ |
| nitrite | $NO_2^-$ |
| nitrate | $NO_3^-$ |
| chromate | $CrO_4^{2-}$ |
| dichromate | $Cr_2O_7^{2-}$ |
| phosphate | $PO_4^{3-}$ |
| hydrogen phosphate | $HPO_4^{2-}$ |
| dihydrogen phosphate | $H_2PO_4^-$ |
| hypochlorite | $ClO^-$ |
| chlorite | $ClO_2^-$ |
| chlorate | $ClO_3^-$ |
| perchlorate | $ClO_4^-$ |
| permanganate | $MnO_4^-$ |
| sulfite | $SO_3^{2-}$ |
| sulfate | $SO_4^{2-}$ |
| hydrogen sulfite (bisulfite) | $HSO_3^-$ |
| hydrogen sulfate (bisulfate) | $HSO_4^-$ |
| cyanide | $CN^-$ |
| peroxide | $O_2^{2-}$ |
| borate | $BO_3^{3-}$ |
| iodate | $IO_3^-$ |

| Prefix | Symbol | Multiplier |
|---|---|---|
| tera | T | $10^{12}$ |
| giga | G | $10^9$ |
| mega | M | $10^6$ |
| kilo | k | $10^3$ |
| deci | d | $10^{-1}$ |
| centi | c | $10^{-2}$ |
| milli | m | $10^{-3}$ |
| micro | μ | $10^{-6}$ |
| nano | n | $10^{-9}$ |
| pico | p | $10^{-12}$ |
| femto | f | $10^{-15}$ |

| Soluble compounds contain | Except when paired with |
|---|---|
| Group I metal cations or $NH_4^+$ | None |
| $CH_3COO^-$, $NO_3^-$, $ClO_3^-$, or $ClO_4^-$ | None |
| $Cl^-$, $Br^-$, or $I^-$ | $Ag^+$, $Hg_2^{2+}$, $Pb^{2+}$ |
| $SO_4^{2-}$ | $Ag^+$, $Hg_2^{2+}$, $Pb^{2+}$, $Ca^{2+}$, $Sr^{2+}$, $Ba^{2+}$ |
| **Insoluble compounds contain** | **Except when paired with** |
| $CO_3^{2-}$,$CrO_4^{2-}$, $PO_4^{3-}$, or $SO_3^{2-}$ | Group I cations or $NH_4^+$ |
| $S^{2-}$ or $OH^-$ | Group I cations or $NH_4^+$, or $Ba^{2+}$ |
| $Ag^+$, $Hg_2^{2+}$, and $Pb^{2+}$ | $CH_3COO^-$, $NO_3^-$, $ClO_3^-$, or $ClO_4^-$ |

| Strong Acids | Strong Bases |
|---|---|
| HCl, HBr, HI, $HNO_3$,$HClO_4$, $H_2SO_4$ | Group I & II metal hydroxides |

**Know the abbreviations and names of shaded elements.**

A copy of the periodic table provided on the exam is linked from the same page you found this document.

| PERIOD | 1 IA | | 3 IIIB | 4 IVB | 5 VB | 6 VIB | 7 VIIB | 8 VIIIB | 9 IXB | 10 XB | 11 XIB | 12 XIIB | 13 IIIA | 14 IVA | 15 VA | 16 VIA | 17 VIIA | 18 VIIIA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 H Hydrogen | 2 IIA | | | | | | | | | | | | | | | | 2 He Helium |
| 2 | 3 Li Lithium | 4 Be Beryllium | | | | | | | | | | | 5 B Boron | 6 C Carbon | 7 N Nitrogen | 8 O Oxygen | 9 F Fluorine | 10 Ne Neon |
| 3 | 11 Na Sodium | 12 Mg Magnesium | | | | | | | | | | | 13 Al Aluminum | 14 Si Silicon | 15 P Phosphorus | 16 S Sulfur | 17 Cl Chlorine | 18 Ar Argon |
| 4 | 19 K Potassium | 20 Ca Calcium | 21 Sc Scandium | 22 Ti Titanium | 23 V Vanadium | 24 Cr Chromium | 25 Mn Manganese | 26 Fe Iron | 27 Co Cobalt | 28 Ni Nickel | 29 Cu Copper | 30 Zn Zinc | 31 Ga Gallium | 32 Ge Germanium | 33 As Arsenic | 34 Se Selenium | 35 Br Bromine | 36 Kr Krypton |
| 5 | 37 Rb Rubidium | 38 Sr Strontium | 39 Y Yttrium | 40 Zr Zirconium | 41 Nb Niobium | 42 Mo Molybdenum | 43 Tc Technetium | 44 Ru Ruthenium | 45 Rh Rhodium | 46 Pd Palladium | 47 Ag Silver | 48 Cd Cadmium | 49 In Indium | 50 Sn Tin | 51 Sb Antimony | 52 Te Tellurium | 53 I Iodine | 54 Xe Xenon |
| 6 | 55 Cs Cesium | 56 Ba Barium | 71 Lu Lutetium | 72 Hf Hafnium | 73 Ta Tantalum | 74 W Tungsten | 75 Re Rhenium | 76 Os Osmium | 77 Ir Iridium | 78 Pt Platinum | 79 Au Gold | 80 Hg Mercury | 81 Tl Thallium | 82 Pb Lead | 83 Bi Bismuth | 84 Po Polonium | 85 At Astatine | 86 Rn Radon |
| 7 | 87 Fr Francium | 88 Ra Radium | 103 Lr Lawrencium | 104 Rf Rutherfordium | 105 Db Dubnium | 106 Sg Seaborgium | 107 Bh Bohrium | 108 Hs Hassium | 109 Mt Meitnerium | 110 Ds Darmstadtium | 111 Rg Roentgenium | 112 Cn Copernicium | 113 Nh Nihonium | 114 Fl Flerovium | 115 Mc Moscovium | 116 Lv Livermorium | 117 Ts Tennessine | 118 Og Oganesson |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 57 La Lanthanum | 58 Ce Cerium | 59 Pr Praseodymium | 60 Nd Neodymium | 61 Pm Promethium | 62 Sm Samarium | 63 Eu Europium | 64 Gd Gadolinium | 65 Tb Terbium | 66 Dy Dysprosium | 67 Ho Holmium | 68 Er Erbium | 69 Tm Thulium | 70 Yb Ytterbium |
| 89 Ac Actinium | 90 Th Thorium | 91 Pa Protactinium | 92 U Uranium | 93 Np Neptunium | 94 Pu Plutonium | 95 Am Americium | 96 Cm Curium | 97 Bk Berkelium | 98 Cf Californium | 99 Es Einsteinium | 100 Fm Fermium | 101 Md Mendelevium | 102 No Nobelium |

105 107 109 110