

Periodic Table of the Elements

1A	1 H Hydrogen 1.00794		2A	3B	4B	5B	6B	7B	8B	9B	10B	11B	12B		3A	4A	5A	6A	7A	8A																																																																						
	3 Li Lithium 6.941	4 Be Beryllium 9.012182		21 Sc Scandium 44.955912	22 Ti Titanium 47.867	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938045	26 Fe Iron 55.845	27 Co Cobalt 58.933195	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Al Aluminum 26.9815386	32 Si Silicon 28.0855	33 P Phosphorus 30.973762	34 S Sulfur 32.065	35 Cl Chlorine 35.453	36 Ar Argon 39.948	37 K Potassium 39.0983	38 Ca Calcium 40.078	39 Sc Scandium 44.955912	40 Ti Titanium 47.867	41 V Vanadium 50.9415	42 Cr Chromium 51.9961	43 Mn Manganese 54.938045	44 Fe Iron 55.845	45 Co Cobalt 58.933195	46 Ni Nickel 58.6934	47 Cu Copper 63.546	48 Zn Zinc 65.38	49 Ga Gallium 69.723	50 Ge Germanium 72.64	51 As Arsenic 74.92160	52 Se Selenium 78.96	53 Br Bromine 79.904	54 Kr Krypton 83.798	55 Rb Rubidium 85.4678	56 Sr Strontium 87.62	57-71 Y Yttrium	58 Zr Zirconium 91.224	59 Nb Niobium 92.90638	60 Mo Molybdenum 95.96	61 Tc Technetium [98]	62 Ru Ruthenium 101.07	63 Rh Rhodium 102.90550	64 Pd Palladium 106.42	65 Ag Silver 107.8682	66 Cd Cadmium 112.411	67 In Indium 114.818	68 Sn Tin 118.710	69 Sb Antimony 121.760	70 Te Tellurium 127.60	71 I Iodine 126.90447	72 Xe Xenon 131.293	73 Cs Cesium 132.9054519	74 Ba Barium 137.327	75 La Lanthanum 138.90547	76 Hf Hafnium 178.49	77 Ta Tantalum 180.94788	78 W Tungsten 183.84	79 Re Rhenium 186.207	80 Os Osmium 190.23	81 Ir Iridium 192.217	82 Pt Platinum 195.084	83 Au Gold 196.966569	84 Hg Mercury 200.59	85 Tl Thallium 204.3833	86 Pb Lead 207.2	87 Bi Bismuth 208.98040	88 Po Polonium [209]	89-103 At Astatine	90 Rn Radon [222]	91 Fr Francium [223]	92 Ra Radium [226]	93 Ac Actinium [227]	94 Th Thorium 232.03806	95 Pa Protactinium 231.03588	96 U Uranium 238.02891	97 Np Neptunium [237]	98 Pu Plutonium [244]	99 Am Americium [243]	100 Cm Curium [247]	101 Bk Berkelium [247]	102 Cf Californium [251]	103 Es Einsteinium [252]	104 Fm Fermium [257]	105 Md Mendelevium [258]	106 No Nobelium [259]	107 Lr Lawrencium [262]

Common Monatomic Ions

IA											7A				8A		
H ⁺	2A										3A		4A	5A	6A	H ⁻	
Li ⁺														N ³⁻	O ²⁻	F ⁻	
Na ⁺	Mg ²⁺											Al ³⁺		P ³⁻	S ²⁻	Cl ⁻	
K ⁺	Ca ²⁺					Cr ²⁺ Cr ³⁺	Mn ²⁺ Mn ³⁺	Fe ²⁺ Fe ³⁺	Co ²⁺ Co ³⁺	Ni ²⁺	Cu ⁺ Cu ²⁺	Zn ²⁺	Ga ³⁺		Se ²⁻	Br ⁻	
Rb ⁺	Sr ²⁺											Ag ⁺	Cd ²⁺		Sn ²⁺ Sn ⁴⁺	I ⁻	
Cs ⁺	Ba ²⁺											Hg ²⁺		Pb ²⁺ Pb ⁴⁺			

Charges of Common Polyatomic Ions*		
1+		
ammonium, NH ₄ ⁺		hydronium, H ₃ O ⁺
1-		
acetate, C ₂ H ₃ O ₂ ⁻	carbonate, CO ₃ ²⁻	3- arsenate, AsO ₄ ³⁻ phosphate, PO ₄ ³⁻
chlorate, ClO ₃ ⁻	hexafluorosilicate, SiF ₆ ²⁻	
cyanide, CN ⁻	oxalate, C ₂ O ₄ ²⁻	
hydroxide, OH ⁻	selenate, SeO ₄ ²⁻	
hypochlorite, ClO ⁻	silicate, SiO ₃ ²⁻	
iodate, IO ₃ ⁻	sulfate, SO ₄ ²⁻	
nitrate, NO ₃ ⁻	tartrate, C ₄ H ₄ O ₆ ²⁻	
nitrite, NO ₂ ⁻	peroxide, O ₂ ²⁻	
perchlorate, ClO ₄ ⁻	hydrogen phosphate, HPO ₄ ²⁻	

Table A-4

Major Formal Oxidation States of Polyatomic Ions			
1-	2-	3-	4-
Azide, N ₃ ⁻	Chromate, CrO ₄ ²⁻	Arsenite, AsO ₃ ³⁻	Hexacyanoferrate(II), Fe(CN) ₆ ²⁻
Benzoate, C ₇ H ₅ O ₂ ⁻	Dichromate, Cr ₂ O ₇ ²⁻	Citrate, C ₆ H ₅ O ₇ ³⁻	Pyrophosphate, P ₂ O ₇ ⁴⁻
Bromate, BrO ₃ ⁻	Hexachloroplatinate(IV), PtCl ₆ ²⁻	Hexacyanoferrate(III), Fe(CN) ₆ ³⁻	
Chlorate, ClO ₃ ⁻	Molybdate, MoO ₄ ²⁻		
Formate, CHO ₂ ⁻	Peroxide, O ₂ ²⁻		
Hypophosphite, PH ₂ O ₂ ⁻	Peroxydisulfate, S ₂ O ₈ ²⁻		
Metaphosphate, PO ₃ ⁻	Sulfite, SO ₃ ²⁻		
Nitrite, NO ₂ ⁻	Tellurate, TeO ₄ ²⁻		
Periodate, IO ₄ ⁻	Tetraborate, B ₄ O ₇ ²⁻		
Permanganate, MnO ₄ ⁻	Thiosulfate, S ₂ O ₃ ²⁻		
Peroxyborate, BO ₃ ⁻	Tungstate, WO ₄ ²⁻		
Thiocyanate, SCN ⁻			
Vanadate, VO ₃ ⁻			

hypochlorite, ClO⁻
chlorite, ClO₂⁻

hydrogen carbonate (bicarbonate), HCO₃⁻

hydrogen sulfite, HSO₃⁻
hydrogen sulfate, HSO₄⁻

dihydrogen phosphate, H₂PO₄⁻