

# Periodic Table of the Elements

(based on  $^{12}_6\text{C} = 12.0000$ )

Group

Representative Elements

14 ..... Atomic number  
 Si ..... Symbol  
 Silicon ..... Name  
 28.086 ..... Average Atomic Mass

1	2	Transition Metals										13	14	15	16	17	18			
1A	2A											3A	4A	5A	6A	7A	8A			
1 H Hydrogen 1.008	2 He Helium 4.003	3 Li Lithium 6.941	4 Be Beryllium 9.012	5 B Boron 10.81	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999	9 F Fluorine 18.998	10 Ne Neon 20.180	11 Na Sodium 22.990	12 Mg Magnesium 24.305	13 Al Aluminum 26.982	14 Si Silicon 28.086	15 P Phosphorus 30.974	16 S Sulfur 32.06	17 Cl Chlorine 35.453	18 Ar Argon 39.948			
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
3B	4B	5B	6B	7B	8B	9B	10B	11B	12B	13	14	15	16	17	18	19	20	21	22	
21 Sc Scandium 44.956	22 Ti Titanium 47.88	23 V Vanadium 50.942	24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.847	27 Co Cobalt 58.933	28 Ni Nickel 58.693	29 Cu Copper 63.546	30 Zn Zinc 65.39	31 Ga Gallium 69.723	32 Ge Germanium 72.61	33 As Arsenic 74.922	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.80	37 Rb Rubidium 85.468	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.224	
4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
49 Cs Cesium 132.905	50 Ba Barium 137.327	51 La Lanthanum 138.905	52 Ce Cerium 140.12	53 Pr Praseodymium 140.908	54 Nd Neodymium 144.24	55 Pm Promethium 144.913	56 Sm Samarium 150.36	57 Eu Europium 151.96	58 Gd Gadolinium 157.25	59 Tb Terbium 158.925	60 Dy Dysprosium 162.50	61 Ho Holmium 164.930	62 Er Erbium 167.26	63 Tm Thulium 168.934	64 Yb Ytterbium 173.04	65 Lu Lutetium 174.967	66 Fr Francium 223	67 Ra Radium 226.025	68 Ac Actinium 227.028	69 Rf Rutherfordium (261)
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
5B	6B	7B	8B	9B	10B	11B	12B	13	14	15	16	17	18	19	20	21	22	23	24	25
71 Rb Rubidium 85.468	72 Sr Strontium 87.62	73 Y Yttrium 88.906	74 Zr Zirconium 91.224	75 Nb Niobium 92.906	76 Mo Molybdenum 95.94	77 Tc Technetium 98	78 Ru Ruthenium 101.07	79 Rh Rhodium 102.906	80 Pd Palladium 106.42	81 Ag Silver 107.868	82 Cd Cadmium 112.411	83 In Indium 114.82	84 Sn Tin 118.710	85 Pb Lead 207.2	86 Bi Bismuth 208.980	87 Po Polonium 209	88 At Astatine 210	89 Rn Radon 222	90 Fr Francium 223	91 Ra Radium 226.025
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
6B	7B	8B	9B	10B	11B	12B	13	14	15	16	17	18	19	20	21	22	23	24	25	26
87 Cs Cesium 132.905	88 Ba Barium 137.327	89 La Lanthanum 138.905	90 Ce Cerium 140.12	91 Pr Praseodymium 140.908	92 Nd Neodymium 144.24	93 Pm Promethium 144.913	94 Sm Samarium 150.36	95 Eu Europium 151.96	96 Gd Gadolinium 157.25	97 Tb Terbium 158.925	98 Dy Dysprosium 162.50	99 Ho Holmium 164.930	100 Er Erbium 167.26	101 Tm Thulium 168.934	102 Yb Ytterbium 173.04	103 Lu Lutetium 174.967	104 Fr Francium 223	105 Ra Radium 226.025	106 Ac Actinium 227.028	107 Rf Rutherfordium (261)
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
7B	8B	9B	10B	11B	12B	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
109 Fr Francium 223	110 Ra Radium 226.025	111 Ac Actinium 227.028	112 Rf Rutherfordium (261)	113 Db Dubnium (262)	114 Sg Seaborgium (263)	115 Bh Bohrium (264)	116 Hs Hassium (265)	117 Mt Meitnerium (266)	118 Ce Cerium 140.12	119 Pr Praseodymium 140.908	120 Nd Neodymium 144.24	121 Pm Promethium 144.913	122 Sm Samarium 150.36	123 Eu Europium 151.96	124 Gd Gadolinium 157.25	125 Tb Terbium 158.925	126 Dy Dysprosium 162.50	127 Ho Holmium 164.930	128 Er Erbium 167.26	

## Inner Transition Metals

### Lanthanide series

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Cerium 140.12	Praseodymium 140.908	Neodymium 144.24	Promethium 144.913	Samarium 150.36	Europium 151.96	Gadolinium 157.25	Terbium 158.925	Dysprosium 162.50	Holmium 164.930	Erbium 167.26	Thulium 168.934	Ytterbium 173.04	Lutetium 174.967

### Actinide series

90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr
Thorium 232.038	Protactinium 231.036	Uranium 238.029	Neptunium 237.048	Plutonium 244.064	Americium 243.061	Curium 247.070	Berkelium 247.070	Californium 251.080	Einsteinium 252.083	Fermium 257.095	Mendelevium 258.099	Nobelium 259.101	Lawrencium 260.105

