

元素周期表

周期\族	I A												0	电子层	0族电子数					
1	1 H 氢 1s¹ 1.008	II A	原子序数——92 U——元素符号 红色表示放射性元素 元素名称——铀 5f36d17s2 注*的表示人造元素 238.0——相对原子质量（加括号的数据为该放射性 元素半衰期最长同位素的质量数） 非金属金属 过渡元素										III A	IV A	V A	VIA	VII A	2 He 氦 1s² 4.003	K	2
2	3 Li 锂 2s¹ 22.99	4 Be 铍 2s² 9.012											5 B 硼 2s²2p¹ 10.81	6 C 碳 2s²2p² 12.01	7 N 氮 2s²2p³ 14.01	8 O 氧 2s²2p⁴ 16.00	9 F 氟 2s²2p⁴ 19.00	10 Ne 氖 2s²2p⁴ 20.18	L K	8 2
3	11 Na 钠 3s¹ 22.99	12 Mg 镁 3s² 24.31	IIIB	IVB	VB	VIB	VII B	VIII			I B	II B	13 Al 铝 3s²3p¹ 26.98	14 Si 硅 3s²3p² 28.09	15 P 磷 3s²3p³ 30.97	16 S 硫 3s²3p⁴ 32.06	17 Cl 氯 3s²3p⁵ 35.45	18 Ar 氩 3s²3p⁶ 39.95	M L K	8 8 2
4	19 K 钾 4s¹ 39.10	20 Ca 钙 4s² 40.08	21 Sc 钪 3d¹4s² 44.96	22 Ti 钛 3d²4s² 47.87	23 V 钒 3d³4s² 50.94	24 Cr 铬 3d⁵4s¹ 52.00	25 Mn 锰 3d⁵4s² 54.94	26 Fe 铁 3d⁶4s² 55.85	27 Co 钴 3d⁷4s² 58.93	28 Ni 镍 3d⁸4s² 58.69	29 Cu 铜 3d¹⁰4s¹ 63.55	30 Zn 锌 3d¹⁰4s² 65.41	31 Ga 镓 4s²4p¹ 69.72	32 Ge 锗 4s²4p² 72.64	33 As 砷 4s²4p³ 74.92	34 Se 硒 4s²4p⁴ 78.96	35 Br 溴 4s²4p⁵ 79.90	36 Kr 氪 4s²4p⁶ 83.80	N M L K	8 18 8 2
5	37 Rb 铷 5s¹ 85.47	38 Sr 锶 5s¹ 87.62	39 Y 钇 4d¹5s² 88.91	40 Zr 锆 4d²5s² 91.22	41 Nb 铌 4d⁴5s¹ 92.91	42 Mo 钼 4d⁵5s¹ 95.94	43 Tc 锝 4d⁵5s² (98)	44 Ru 钌 4d⁷5s¹ 102.9	45 Rh 铑 4d⁸5s¹ 102.9	46 Pd 钯 4d¹⁰ 106.4	47 Ag 银 4d¹⁰5s¹ 107.9	48 Cd 镉 4d¹⁰5s² 112.4	49 In 铟 5s²5p¹ 114.8	50 Sn 锡 5s²5p² 118.7	51 Sb 锑 5s²5p³ 121.8	52 Te 碲 5s²5p⁴ 127.6	53 I 碘 5s²5p⁵ 126.9	54 Xe 氙 5s²5p⁶ 131.3	O N M L K	8 18 18 8 2
6	55 Cs 铯 6s¹ 132.9	56 Ba 钡 6s² 137.3	57~71 La~Lu 镧系	72 Hf 铪 5d²6s² 178.5	73 Ta 钽 5d³6s² 180.9	74 W 钨 5d⁴6s² 183.8	75 Re 铼 5d⁵6s² 186.2	76 Os 锇 5d⁶6s² 190.2	77 Ir 铱 5d⁷6s² 192.2	78 Pt 铂 5d⁹6s¹ 195.1	79 Au 金 5d¹⁰6s¹ 197.0	80 Hg 汞 5d¹⁰6s² 200.6	81 Tl 铊 6s²6p¹ 204.4	82 Pb 铅 6s²6p² 207.2	83 Po 钋 6s²6p³ 209.0	84 Po 钋 6s²6p⁴ (209)	85 At 砹 6s²6p¹ (210)	86 Rn 氡 6s²6p¹ (222)	P O N M L K	8 18 32 18 8 2
7	87 Fr 钫 7s¹ (223)	88 Rr 𨭻 7s² (226)	89~103 Ac~Lr 锕系	104 Rf 𨭻 6d²7s² (261)	105 Db 𨭻 6d³7s² (262)	106 Sg 𨭻 6d⁵7s² (266)	107 Bh 𨭻 6d⁶7s² (264)	108 Hs 𨭻 6d⁸7s² (277)	109 Mt 𨭻 6d⁷7s² (268)	110 Ds 𨭻 6d⁹7s² (281)	111 Rg 𨭻 6d¹⁰7s² (272)	112 Uub 𨭻 7s² (285)								

镧系	57 La 镧 5d¹6s² 138.9	58 Ce 铈 4f¹5d¹6s² 140.1	59 Pr 镨 4f³6s2 140.9	60 Nd 钕 4f⁴6s² 144.2	61 Pm 钷 4f⁶6s² (145)	62 Sm 钐 4f⁶6s² 150.4	63 Eu 铕 4f⁷6s² 152.0	64 Gd 钆 4f⁷5d¹6s² 157.3	65 Tb 铽 4f⁹6s² 158.9	66 Dy 镝 4f¹⁰6s² 162.5	67 Ho 钬 4f¹¹6s² 164.9	68 Er 铒 4f¹²6s² 167.3	69 Tm 铥 4f¹³6s² 168.9	70 Yb 镱 4f¹⁴6s² 173.0	71 Lu 镥 4f¹⁴5d¹6s² 175.0
锕系	89 Ac 锕 6d¹7s² (227)	90 Th 钍 6d²7s² 232.0	91 Pa 镤 5f²6d¹7s² 231.0	92 U 铀 5f³6d¹7s² 238.0	93 Np 镎 5f⁴6d¹7s² (237)	94 Pu 钚 5f⁶7s² (244)	95 Am 镅 5f⁷7s² (243)	96 Cm 锔 5f⁷6d¹7s² (247)	97 Bk 锫 5f⁹7s² (147)	98 Cf 锿 5f¹⁰7s² (251)	99 Es 镱 5f¹¹7s² (252)	100 Fm 镆 5f¹²7s² (257)	101 Md 钔 5f¹³7s² (258)	102 No 镎 5f¹⁴7s² (259)	103 Lr 铹 5f¹⁴6d¹7s² (262)

周期表

化学元素周期表

A PERIODIC TABLE OF THE CHEMICAL ELEMENTS

1

2

3

4

5

6

7

2/IIA

1 Li 3 锂 6.941 (2) [He]2s ¹ Lithium	2 Be 4 铍 9.012182 (3) [He]2s ² Beryllium
11 Na 22.98976928 (2) [Ne]3s ¹ Sodium	12 Mg 24.3050 (6) [Ne]3s ² Magnesium
19 K 39.0983 (1) [Ar] 4s ¹ Potassium	20 Ca 40.078 (4) [Ar] 4s ² Calcium
37 Rb 85.4678 (3) [Kr]5s ¹ Rubidium	38 Sr 87.62 (1) [Kr]5s ² Strontium
55 Cs 132.9054519 (2) [Xe]6s ¹ Cesium	56 Ba 137.327 (7) [Xe]6s ² Barium
87 Fr [223.0197] [Rn]7s ¹ Francium	88 Ra [226.0254] [Rn]7s ² Radium

一些单键(A-B)的平均键能($\bar{D}$ /kJ·mol⁻¹)(298K)

A	H	C	Si	Ge	N	P	As	O	S	Se	F	Cl	Br	I
H	436	416	323	289	391	322	247	467	347	276	566	431	366	299
C	356	301	255	285	264	201	336	272	243	485	327	285	213	
Si		226	—	335	—	—	368	226	—	582	391	310	234	
Ge			188	256	—	—	—	—	—	342	276	213		
N				160~200	—	201	—	—	272	193	—	—	—	
P				209	—	340	—	—	490	319	264	184		
As					180	331	—	—	464	317	243	180		
O						146	—	—	190	205	—	201		
S							226	—	326	255	213	—		
Se								172	285	243	—	—		
F									158	255	238	—		
Cl										242	217	209		
Br											193	180		
I												151		

3/IIIB 4/IVB 5/VB 6/VIB 7/VIB 8/VIB 9/VIB 10/VIB 11/IB 12/IIB

32 1.3 Sc 633 18.1 21 钪 1879年 44.955912 (6) [Ar]3d⁴4s²	43 2 1.5 Ti 659 7.6 22 钛 1789年 47.867 (1) [Ar]3d²4s²	54 3 1.6 V 651 50.7 23 钒 1830年 50.9415 (1) [Ar]3d³4s²	65 4 1.6 Cr 653 64.3 24 铬 1797年 51.9961 (6) [Ar]3d⁵4s¹	76 5 1.5 Mn 717 54.938045 (5) [Ar]3d⁵4s² 25 锰 1774年	87 6 1.8 Fe 742 55.845 (2) [Ar]3d⁶4s² 26 铁 13世纪 公元前	98 7 1.8 Co 760 58.933195 (5) [Ar]3d⁷4s² 27 钴 1735年	109 8 1.8 Ni 737 58.6934 (2) [Ar]3d⁸4s² 28 镍 1751年	120 9 1.9 Cu 745 63.546 (3) [Ar]3d¹⁰4s¹ 29 铜 21世纪 公元前	131 10 2 Zn 906 65.38 (2) [Ar]3d¹⁰4s² 30 锌 公元 1世纪
3 1.2 Y 636 29.6 39 钇 1794年 88.90585 (2) [Kr]4d¹5s² Yttrium	44 3 1.4 Zr 640 41.1 40 锆 1789年 91.224 (2) [Kr]4d²5s² Zirconium	55 4 1.6 Nb 652 86.2 41 铌 1801年 92.90638 (2) [Kr]4d⁴5s¹ Niobium	66 5 1.8 Mo 684 72.2 42 钼 1778年 95.96 (2) [Kr]4d⁵5s¹ Molybdenum	77 6 1.9 Tc 702 53.1 43 锝 1937年 97.9072 (无稳定核素) [Kr]4d⁵5s² Technetium	88 7 2.2 Ru 710 101.3 44 钌 1844年 101.07 (2) [Kr]4d⁷5s¹ Ruthenium	99 8 2.2 Rh 720 109.7 45 铑 1804年 102.90550 (2) [Kr]4d⁸5s¹ Rhodium	110 9 2.2 Pd 804 54.2 46 钯 1803年 106.42 (1) [Kr]4d¹⁰ Palladium	121 1 1.9 Ag 731 125.6 47 银 古代 107.8682 (2) [Kr]4d¹⁰5s¹ Silver	132 2 1.7 Cd 868 (-58) 48 镉 1817年 112.411 (8) [Kr]4d¹⁰5s² Cadmium
镧系元素 LANTHANIDE 57 ~ 71	72 4 1.3 Hf 659 728 73 铪 1923年 178.49 (2) [Xe]4f¹⁴5d²6s² Hafnium	74 5 1.5 Ta 728 31.1 75 钽 1802年 180.94788 (2) [Xe]4f¹⁴5d³6s² Tantalum	76 6 1.7 W 759 78.6 77 钨 1783年 183.84 (1) [Xe]4f¹⁴5d⁴6s² Tungsten	78 7 1.9 Re 756 107.56 79 铼 1925年 186.207 (1) [Xe]4f¹⁴5d⁵6s² Rhenium	80 8 2.2 Os 814 106.1 81 锇 1804年 190.23 (3) [Xe]4f¹⁴5d⁶6s² Osmium	82 9 2.2 Ir 865 150.9 83 铱 1804年 192.22 (2) [Xe]4f¹⁴5d⁷6s² Iridium	84 10 2.2 Pt 864 205.3 85 铂 1735年 195.084 (9) [Xe]4f¹⁴5d⁹6s¹ Platinum	86 11 2.4 Au 890 222.7 87 金 古代 196.966569 (4) [Xe]4f¹⁴5d¹⁰6s¹ Gold	88 12 1.9 Hg 1007 200.59 (2) 89 汞 3000年前 200.59 (2) [Xe]4f¹⁴5d¹⁰6s² Mercury
锕系元素 ACTINIDE 89 ~ 103	104 4 579 105 镅 1964年 [261.1088] [Rn]5f¹⁴6d²7s² Rutherfordium	106 5 595.78 107 镎 1968年 [262.1141] [Rn]5f¹⁴6d³7s² Dubnium	108 6 682.27 109 钷 1974年 [266.1219] [Rn]5f¹⁴6d⁴7s² Seaborgium	110 7 624.61 111 钹 1981年 [264.12] [Rn]5f¹⁴6d⁵7s² Bohrium	112 8 711.10 113 𨭈 1984年 [277] [Rn]5f¹⁴6d⁶7s² Hassium	114 9 789.97 115 镆 1982年 [268.1388] [Rn]5f¹⁴6d⁷7s² Meitnerium	116 10 903.28 117 鰐 1995年 [271] [Rn]5f¹⁴6d⁸7s² Darmstadtium	118 11 989.77 119 鰩 1995年 [272.1535] [Rn]5f¹⁴6d⁹7s² Roentgenium	120 12 1066.64 121 𨭎 1996年 [285] [Rn]5f¹⁴6d¹⁰7s² Ununbium

1, -1
H
1 氢
1.00794 (7)
1s¹
Hydrogen

一些键(A-B)的平均键能($\bar{D}$ /kJ·mol⁻¹)(298K)

C-C 356	N-N 160	C-N 292
C=C 598	N=N 418	C=N 615
C≡C 813	N≡N 945	C≡N 891

氧化态(红色为最常见) → 4, 3, 2
电负性(Pauling) → 1.5
第一电离能/(kJ/mol) → 661
元素符号 → Ti
第一电子亲和能/(kJ/mol) → (37.7)
原子序数 → 22
发现年代 → 1789年
元素中文名称 → 钛
元素英文名称 → Titanium
元素英文名称 → Titanium

13/IIIA 14/IVA 15/VA 16/VIA 17/VIIA

5 B 10.811 (7) [He]2s ² 2p ¹ Boron	6 C 12.0107 (8) [He]2s ² 2p ² Carbon	7 N 14.0067 (2) [He]2s ² 2p ³ Nitrogen	8 O 15.9994 (3) [He]2s ² 2p ⁴ Oxygen	9 F 18.9984032 (5) [He]2s ² 2p ⁵ Fluorine	10 Ne 20.1797 (6) [He]2s ² 2p ⁶ Neon
13 Al 26.9815386 (8) [Ne]3s ² 3p ¹ Aluminum	14 Si 28.0855 (3) [Ne]3s ² 3p ² Silicon	15 P 30.973762 (2) [Ne]3s ² 3p ³ Phosphorus	16 S 32.065 (5) [Ne]3s ² 3p ⁴ Sulfur	17 Cl 35.453 (2) [Ne]3s ² 3p ⁵ Chlorine	18 Ar 39.948 (1) [Ne]3s ² 3p ⁶ Argon
31 Ga 69.723 (1) [Ar]3d ¹⁰ 4s ¹ 4p ¹ Gallium	32 Ge 72.64 (1) [Ar]3d ¹⁰ 4s ² 4p ² Germanium	33 As 74.92160 (2) [Ar]3d ¹⁰ 4s ² 4p ³ Arsenic	34 Se 78.96 (3) [Ar]3d ¹⁰ 4s ² 4p ⁴ Selenium	35 Br 79.904 (1) [Ar]3d ¹⁰ 4s ² 4p ⁵ Bromine	36 Kr 83.798 (2) [Ar]3d ¹⁰ 4s ² 4p ⁶ Krypton
49 In 114.818 (3) [Kr]4d ¹⁰ 5s ¹ 5p ¹ Indium	50 Sn 118.710 (7) [Kr]4d ¹⁰ 5s ² 5p ² Tin	51 Sb 121.760 (1) [Kr]4d ¹⁰ 5s ² 5p ³ Antimony	52 Te 127.60 (3) [Kr]4d ¹⁰ 5s ² 5p ⁴ Tellurium	53 I 126.90447 (3) [Kr]4d ¹⁰ 5s ² 5p ⁵ Iodine	54 Xe 131.293 (6) [Kr]4d ¹⁰ 5s ² 5p ⁶ Xenon
81 Tl 204.3833 (2) [Xe]4f ¹⁴ 5d ¹⁰ 6s ¹ 6p ¹ Thallium	82 Pb 207.2 (1) [Xe]4f ¹⁴ 5d ¹⁰ 6s ² 6p ² Lead	83 Bi 208.98040 (1) [Xe]4f ¹⁴ 5d ¹⁰ 6s ² 6p ³ Bismuth	84 Po 209 (估计) [Xe]4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁴ Polonium	85 At 210 (估计) [Xe]4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁵ Astatine	86 Rn 222 (估计) [Xe]4f ¹⁴ 5d ¹⁰ 6s ² 6p ⁶ Radon
114 Uuq [289] [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ² Ununquadium	115 Uup [288] [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ³ Ununpentium	116 Uuh [289] [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁴ Ununhexium	117 Uus [289] [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁵ Ununseptium	118 Uuo [293] [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ Ununoctium	119 Uue [289] [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁷ Ununennium

[说明]

- 表的底色为原子结构分区:蓝色为s区,黄色为d区,淡红色为p区,绿色为f区。
- 元素符号黑色为固态,蓝色为液态,红色为气态,空心为放射性元素。
- 酸性碱性指代氧化性或高价氧化物的酸碱性:红色为酸性,蓝色为碱性,两色为两性。
- 族的表示法前者为美国习惯,后者为IUPAC推荐表示法。
- 表中引用数据均取自 CRC Handbook of Chemistry and Physics, David R. Lide (Editor-in-Chief), 89 Edition, 2008-2009.

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3 La 138.90547 (7) [Xe]4f ¹ 5d ¹ 6s ² Lanthanum	4 Ce 140.116 (1) [Xe]4f ¹ 5d ¹ 6s ² Cerium	5 Pr 140.90765 (2) [Xe]4f ³ 5d ¹ 6s ² Praseodymium	6 Nd 144.242 (3) [Xe]4f ⁴ 5d ¹ 6s ² Neodymium	7 Pm 144.9127 (无稳定核素) [Xe]4f ⁵ 5d ¹ 6s ² Promethium	8 Sm 150.36 (2) [Xe]4f ⁶ 5d ¹ 6s ² Samarium	9 Eu 151.964 (1) [Xe]4f ⁷ 5d ¹ 6s ² Europium	10 Gd 157.25 (3) [Xe]4f ⁷ 5d ¹ 6s ² Gadolinium	11 Tb 158.92535 (2) [Xe]4f ⁹ 5d ¹ 6s ² Terbium	12 Dy 162.500 (1) [Xe]4f ¹⁰ 5d ¹ 6s ² Dysprosium	13 Ho 164.93032 (2) [Xe]4f ¹¹ 5d ¹ 6s ² Holmium	14 Er 167.259 (3) [Xe]4f ¹² 5d ¹ 6s ² Erbium	15 Tm 168.93421 (2) [Xe]4f ¹³ 5d ¹ 6s ² Thulium	16 Yb 173.054 (5) [Xe]4f ¹⁴ 5d ¹ 6s ² Ytterbium	17 Lu 174.9668 (1) [Xe]4f ¹⁴ 5d ¹ 6s ² Lutetium
89 Ac [227.0277] [Rn]5f ¹ 6d ¹ 7s ² Actinium	90 Th 232.03806 (2) [Rn]5f ¹ 6d ¹ 7s ² Thorium	91 Pa 231.03588 (2) [Rn]5f ² 6d ¹ 7s ² Protactinium	92 U 238.02891 (3) [Rn]5f ³ 6d ¹ 7s ² Uranium	93 Np 237.0482 (无稳定核素) [Rn]5f ⁴ 6d ¹ 7s ² Neptunium	94 Pu 244.0642 (无稳定核素) [Rn]5f ⁶ 6d ¹ 7s ² Plutonium	95 Am 243.0614 (无稳定核素) [Rn]5f ⁷ 6d ¹ 7s ² Americium	96 Cm 247.0704 (无稳定核素) [Rn]5f ⁸ 6d ¹ 7s ² Curium	97 Bk 247.0703 (无稳定核素) [Rn]5f ⁹ 6d ¹ 7s ² Berkelium	98 Cf 251.0796 (无稳定核素) [Rn]5f ¹⁰ 6d ¹ 7s ² Californium	99 Es 252.0830 (无稳定核素) [Rn]5f ¹¹ 6d ¹ 7s ² Einsteinium	100 Fm 257.0951 (无稳定核素) [Rn]5f ¹² 6d ¹ 7s ² Fermium	101 Md 258.0984 (无稳定核素) [Rn]5f ¹³ 6d ¹ 7s ² Mendelevium	102 No 259.1010 (无稳定核素) [Rn]5f ¹⁴ 6d ¹ 7s ² Nobelium	103 Lr 262.1097 (无稳定核素) [Rn]5f ¹⁴ 6d ¹ 7s ² Lawrencium

PERIODIC TABLE

Atomic Properties of the Elements

National Institute of Standards and Technology U.S. Department of Commerce																		18 VIIIA	
Physical Measurement Laboratory www.nist.gov/pml																		Standard Reference Data www.nist.gov/srd	
Frequently used fundamental physical constants																			
For the most accurate values of these and other constants, visit physics.nist.gov/constants 1 second = 9 192 631 770 periods of radiation corresponding to the transition between the two hyperfine levels of the ground state of ¹³³ Cs																			
speed of light in vacuum <i>c</i> 299 792 458 m s ⁻¹ (exact)																			
Planck constant <i>h</i> 6.626 07 × 10 ⁻³⁴ J s (<i>h</i> = <i>h</i> /2 <i>π</i>)																			
elementary charge <i>e</i> 1.602 177 × 10 ⁻¹⁹ C																			
electron mass <i>m_e</i> 9.109 38 × 10 ⁻³¹ kg																			
<i>m_ec²</i> 0.510 999 MeV																			
proton mass <i>m_p</i> 1.672 622 × 10 ⁻²⁷ kg																			
fine-structure constant <i>α</i> 1/137.035 999																			
Rydberg constant <i>R_∞</i> 10 973 731.569 m ⁻¹																			
<i>R_∞c</i> 3.289 841 960 × 10 ¹⁵ Hz																			
<i>R_∞hc</i> 13.605 69 eV																			
Boltzmann constant <i>k</i> 1.380 6 × 10 ⁻²³ J K ⁻¹																			
Solids																			
Liquids																			
Gases																			
Artificially Prepared																			
13 IIIA																		15 VA	
5 B																		7 N	
Boron 10.81* 1s ² 2s ² 2p																		Nitrogen 14.007* 1s ² 2s ² 2p ³	
13 Al																		15 P	
Aluminum 26.9815386 [Ne]3s ² 3p																		Phosphorus 30.973762 [Ne]3s ² 3p ³	
14 IVA																		16 VIA	
6 C																		8 O	
Carbon 12.011* 1s ² 2s ² 2p ²																		Oxygen 15.999* 1s ² 2s ² 2p ⁴	
14 Si																		16 S	
Silicon 28.085* [Ne]3s ² 3p ²																		Sulfur 32.06* [Ne]3s ² 3p ⁴	
17 VIIA																		18 IIA	
9 F																		10 Ne	
Fluorine 18.9984032 1s ² 2s ² 2p ⁵																		Neon 20.1797 1s ² 2s ² 2p ⁶	
17 Cl																		18 Ar	
Chlorine 35.45* [Ne]3s ² 3p ⁵																		Argon 39.948 [Ne]3s ² 3p ⁶	
3 IIIB																		4 IVB	
19 K																		20 Ca	
Potassium 39.0983 [Ar]4s																		Calcium 40.078 [Ar]4s ²	
21 Sc																		22 Ti	
Scandium 44.955912 [Ar]3d ⁴ 4s ²																		Titanium 47.867 [Ar]3d ² 4s ²	
23 V																		24 Cr	
Vanadium 50.9415 [Ar]3d ³ 4s ²																		Chromium 51.9961 [Ar]3d ⁵ 4s	
25 Mn																		26 Fe	
Manganese 54.938045 [Ar]3d ⁵ 4s ²																		Iron 55.845 [Ar]3d ⁶ 4s ²	
27 Co																		28 Ni	
Cobalt 58.933195 [Ar]3d ⁷ 4s ²																		Nickel 58.6934 [Ar]3d ⁸ 4s ²	
29 Cu																		30 Zn	
Copper 63.546 [Ar]3d ¹⁰ 4s																		Zinc 65.38 [Ar]3d ¹⁰ 4s ²	
31 Ga																		32 Ge	
Gallium 69.723 [Ar]3d ¹⁰ 4s ² 4p																		Germanium 72.63 [Ar]3d ¹⁰ 4s ² 4p ²	
33 As																		34 Se	
Arsenic 74.92160 [Ar]3d ¹⁰ 4s ² 4p ³																		Selenium 78.96 [Ar]3d ¹⁰ 4s ² 4p ⁴	
35 Br																		36 Kr	
Bromine 79.904 [Ar]3d ¹⁰ 4s ² 4p ⁵																		Krypton 83.798 [Ar]3d ¹⁰ 4s ² 4p ⁶	
37 Rb																		38 Sr	
Rubidium 85.4678 [Kr]5s																		Strontium 87.62 [Kr]5s ²	
39 Y																		40 Zr	
Yttrium 88.90585 [Kr]4d ⁵ 5s ²																		Zirconium 91.224 [Kr]4d ⁵ 5s ²	
41 Nb																		42 Mo	
Niobium 92.90638 [Kr]4d ⁵ 5s																		Molybdenum 95.96 [Kr]4d ⁵ 5s	
43 Tc																		44 Ru	
Technetium (98) [Kr]4d ⁵ 5s ²																		Ruthenium 101.07 [Kr]4d ⁷ 5s	
45 Rh																		46 Pd	
Rhodium 102.90550 [Kr]4d ⁹ 5s																		Palladium 106.42 [Kr]4d ¹⁰ 5s	
47 Ag																		48 Cd	
Silver 107.8682 [Kr]4d ¹⁰ 5s																		Cadmium 112.411 [Kr]4d ¹⁰ 5s ²	
49 In																		50 Sn	
Indium 114.818 [Kr]4d ¹⁰ 5s ² 5p																		Tin 118.710 [Kr]4d ¹⁰ 5s ² 5p ²	
51 Sb																		52 Te	
Antimony 121.760 [Kr]4d ¹⁰ 5s ² 5p ³																		Tellurium 127.60 [Kr]4d ¹⁰ 5s ² 5p ⁴	
53 I																		54 Xe	
Iodine 126.90447 [Kr]4d ¹⁰ 5s ² 5p ⁵																		Xenon 131.293 [Kr]4d ¹⁰ 5s ² 5p ⁶	
55 Cs																		56 Ba	
Cesium 132.9054519 [Xe]6s																		Barium 137.327 [Xe]6s ²	
57 La																		58 Ce	
Lanthanum 138.90547 [Xe]5d ¹ 6s ²																		Cerium 140.116 [Xe]4f ¹ 5d ¹ 6s ²	
59 Pr																		60 Nd	
Praseodymium 140.90765 [Xe]4f ³ 6s ²																		Neodymium 144.242 [Xe]4f ⁴ 6s ²	
61 Pm																		62 Sm	
Promethium (145) [Xe]4f ⁵ 6s ²																		Samarium 150.36 [Xe]4f ⁶ 6s ²	
63 Eu																		64 Gd	
Europium 151.964 [Xe]4f ⁷ 6s ²																		Gadolinium 157.25 [Xe]4f ⁷ 5d ¹ 6s ²	
65 Tb																		66 Dy	
Terbium 158.92535 [Xe]4f ⁹ 6s ²																		Dysprosium 162.500 [Xe]4f ¹⁰ 6s ²	
67 Ho																		68 Er	
Holmium 164.93032 [Xe]4f ¹¹ 6s ²																		Erbium 167.259 [Xe]4f ¹² 6s ²	
69 Tm																		70 Yb	
Thulium 168.93421 [Xe]4f ¹³ 6s ²																		Ytterbium 173.054 [Xe]4f ¹⁴ 6s ²	
71 Lu																		72 Hf	
Lutetium 174.9668 [Xe]4f ¹⁴ 5d ¹ 6s ²																		Hafnium 178.49 [Xe]4f ¹⁴ 5d ² 6s ²	
73 Ta																		74 W	
Tantalum 180.94788 [Xe]4f ¹⁴ 5d ³ 6s ²																		Tungsten 183.84 [Xe]4f ¹⁴ 5d ⁴ 6s ²	
75 Re																		76 Os	
Rhenium 186.207 [Xe]4f ¹⁴ 5d ⁵ 6s ²																		Osmium 190.23 [Xe]4f ¹⁴ 5d ⁶ 6s ²	
77 Ir																		78 Pt	
Iridium 192.217 [Xe]4f ¹⁴ 5d ⁷ 6s ²																		Platinum 195.084 [Xe]4f ¹⁴ 5d ⁹ 6s ²	
79 Au																		80 Hg	
Gold 196.966569 [Xe]4f ¹⁴ 5d ¹⁰ 6s																		Mercury 200.59 [Xe]4f ¹⁴ 5d ¹⁰ 6s ²	
81 Tl																		82 Pb	
Thallium 204.38* [Hg]6p																		Lead 207.2 [Hg]6p ²	
83 Bi																		84 Po	
Bismuth 208.98040 [Hg]6p ³																		Polonium (209) [Hg]6p ⁴	
85 At																		86 Rn	
Astatine (210) [Hg]6p ⁵																		Radon (222) [Hg]6p ⁶	
87 Fr																		88 Ra	
Francium (223) [Rn]7s																		Radium (226) [Rn]7s ²	
89 Ac																		90 Th	
Actinium (227) [Rn]6d ¹ 7s ²																		Thorium 232.03806 [Rn]6d ² 7s ²	
91 Pa																		92 U	
Protactinium 231.03588 [Rn]5f ² 6d ¹ 7s ²																		Uranium 238.02891 [Rn]5f ³ 6d ¹ 7s ²	
93 Np																		94 Pu	
Neptunium 237.04362 [Rn]5f ⁴ 6s ² 7s ²																		Plutonium 244 [Rn]5f ⁶ 7s ²	
95 Am																		96 Cm	
Americium 243 [Rn]5f ⁷ 7s ²																		Curium 247 [Rn]5f ⁸ 7s ²	
97 Bk																		98 Cf	
Berkelium 247 [Rn]5f ⁹ 7s ²																		Californium 251 [Rn]5f ¹⁰ 7s ²	
99 Es																		100 Fm	
Einsteinium 252 [Rn]5f ¹¹ 7s ²																		Fermium 257 [Rn]5f ¹² 7s ²	
101 Md																		102 No	
Mendelevium 258 [Rn]5f ¹³ 7s ²																		Nobelium 259 [Rn]5f ¹⁴ 7s ²	
103 Lr																		104 Rf	
Lawrencium 262 [Rn]5f ¹⁴ 7s ² 7p																		Rutherfordium (261) [Rn]5f ¹⁴ 6d ¹ 7s ²	
105 Db																		106 Sg	
Dubnium 261 [Rn]5f ¹⁴ 6d ³ 7s ²																		Seaborgium (271) [Rn]5f ¹⁴ 6d ⁴ 7s ²	
107 Bh																		108 Hs	
Bohrium 264 [Rn]5f ¹⁴ 6d ⁵ 7s ²																		Hassium 277 [Rn]5f ¹⁴ 6d ⁶ 7s ²	
109 Mt																		110 Ds	
Meitnerium 268 [Rn]5f ¹⁴ 6d ⁷ 7s ²																		Darmstadtium (281) [Rn]5f ¹⁴ 6d ⁸ 7s ²	
111 Rg																		112 Cn	
Roentgenium (280) [Rn]5f ¹⁴ 6d ⁹ 7s ²																		Copernicium (285) [Rn]5f ¹⁴ 6d ¹⁰ 7s ²	
113 Uut																		114 Fl	
Ununtrium (284) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p																		Flerovium (289) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ²	
115 Uup																		116 Lv	
Ununpentium (288) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ³																		Livermorium (293) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁴	
117 Uus																		118 Uuo	
Ununseptium (294) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁵																		Ununoctium (294) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶	
119 Uuh																		120 Uuq	
Ununhennium (295) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s																		Ununquadium (296) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ²	
121 Uuu																		122 Uuq	
Ununtrium (297) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p																		Ununhexium (298) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ²	
123 Uuu																		124 Uuq	
Ununtrium (299) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁴																		Ununseptium (300) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶	
125 Uuu																		126 Uuq	
Ununtrium (301) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s																		Ununhexium (302) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ²	
127 Uuu																		128 Uuq	
Ununtrium (303) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p																		Ununhexium (304) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ²	
129 Uuu																		130 Uuq	
Ununtrium (305) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁴																		Ununhexium (306) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁴ 9d	
131 Uuu																		132 Uuq	
Ununtrium (307) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s																		Ununhexium (308) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ²	
133 Uuu																		134 Uuq	
Ununtrium (309) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p																		Ununhexium (310) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ²	
135 Uuu																		136 Uuq	
Ununtrium (311) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁴																		Ununhexium (312) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁴ 10d	
137 Uuu																		138 Uuq	
Ununtrium (313) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s																		Ununhexium (314) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ²	
139 Uuu																		140 Uuq	
Ununtrium (315) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p																		Ununhexium (316) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ²	
141 Uuu																		142 Uuq	
Ununtrium (317) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁴																		Ununhexium (318) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁴ 11d	
143 Uuu																		144 Uuq	
Ununtrium (319) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s																		Ununhexium (320) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s ²	
145 Uuu																		146 Uuq	
Ununtrium (321) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s ² 12p																		Ununhexium (322) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s ² 12p ²	
147 Uuu																		148 Uuq	
Ununtrium (323) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s ² 12p ⁴																		Ununhexium (324) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s ² 12p ⁴ 12d	
149 Uuu																		150 Uuq	
Ununtrium (325) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s ² 12p ⁶ 13s																		Ununhexium (326) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s ² 12p ⁶ 13s ²	
151 Uuu																		152 Uuq	
Ununtrium (327) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s ² 12p ⁶ 13s ² 13p																		Ununhexium (328) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8s ² 8p ⁶ 9s ² 9p ⁶ 10s ² 10p ⁶ 11s ² 11p ⁶ 12s ² 12p ⁶ 13s ² 13p ²	
153 Uuu																		154 Uuq	
Ununtrium (329) [Rn]5f ¹⁴ 6d ¹⁰ 7s ² 7p ⁶ 8																			

ACTINIDE SERIES

90 Th 232.0		91 Pa 231.0		92 U 238.0		93 Np 237 ⁺		94 Pu 244 ⁺		95 Am 243 ⁺		96 Cm 247 ⁺		97 Bk 247 ⁺		98 Cf 251 ⁺		99 Es 252 ⁺		100 Fm 257 ⁺		101 Md 258 ⁺		102 No 259 ⁺		103 Lr 262 ⁺	
Thorium		Protactinium		Uranium		Neptunium		Plutonium		Americium		Curium		Berkelium		Californium		Einsteinium		Fermium		Mendelevium		Nobelium		Lawrencium	
[Rn]6d ² 7s ²		[Rn]5f ² 6d ¹ 7s ²		[Rn]5f ³ 6d ¹ 7s ²		[Rn]5f ⁴ 6d ¹ 7s ²		[Rn]5f ⁶ 7s ²		[Rn]5f ⁷ 7s ²		[Rn]5f ⁶ 6d ¹ 7s ²		[Rn]5f ⁹ 7s ²		[Rn]5f ¹⁰ 7s ²		[Rn]5f ¹¹ 7s ²		[Rn]5f ¹² 7s ²		[Rn]5f ¹³ 7s ²		[Rn]5f ¹⁴ 7s ²		[Rn]5f ¹⁴ 6d ¹ 7s ²	
Oxidation States 4	Electroneg. 1.3	Oxidation States 5,4	Electroneg. 1.5	Oxidation States 6,5,4,3	Electroneg. 1.7	Oxidation States 6,5,4,3	Electroneg. 1.3	Oxidation States 6,5,4,3	Electroneg. 1.3	Oxidation States 6,5,4,3	Electroneg. 1.3	Oxidation States 3	Electroneg. —	Oxidation States 4,3	Electroneg. —	Oxidation States 3	Electroneg. —	Oxidation States 3	Electroneg. —	Oxidation States 3	Electroneg. —	Oxidation States 3,2	Electroneg. —	Oxidation States 3,2	Electroneg. —	Oxidation States 3	Electroneg. —
Atomic Radius 180	Ionic Radius (+4)94	Atomic Radius 161	Ionic Radius (+5)78	Atomic Radius 139	Ionic Radius (+6)73	Atomic Radius —	Ionic Radius (+5)75	Atomic Radius 151	Ionic Radius (+4)86	Atomic Radius 131	Ionic Radius (+3)98	Atomic Radius —	Ionic Radius (+3)97	Atomic Radius —	Ionic Radius (+3)96	Atomic Radius —	Ionic Radius (+3)95	Atomic Radius —	Ionic Radius —	Atomic Radius —	Ionic Radius —	Atomic Radius —	Ionic Radius —	Atomic Radius —	Ionic Radius —	Atomic Radius —	Ionic Radius —
Electron Affinity —	1st Ion. Pot. 6.08	Electron Affinity —	1st Ion. Pot. 5.89	Electron Affinity —	1st Ion. Pot. 6.19	Electron Affinity —	1st Ion. Pot. 6.27	Electron Affinity —	1st Ion. Pot. 6.06	Electron Affinity —	1st Ion. Pot. 5.99	Electron Affinity —	1st Ion. Pot. 6.02	Electron Affinity —	1st Ion. Pot. 6.23	Electron Affinity —	1st Ion. Pot. 6.30	Electron Affinity —	1st Ion. Pot. 6.42	Electron Affinity —	1st Ion. Pot. 6.50	Electron Affinity —	1st Ion. Pot. 6.58	Electron Affinity —	1st Ion. Pot. 6.65	Electron Affinity —	1st Ion. Pot. —

PERIODIC TABLE OF THE ELEMENTS

<http://www.ktf-split.hr/periodni/en/>

GROUP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
PERIOD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1 1.0079 H HYDROGEN	2 4.0026 He HELIUM																
2	3 6.941 Li LITHIUM	4 9.0122 Be BERYLLIUM	5 10.811 B BORON	6 12.011 C CARBON	7 14.007 N NITROGEN	8 15.999 O OXYGEN	9 18.998 F FLUORINE	10 20.180 Ne NEON										
3	11 22.990 Na SODIUM	12 24.305 Mg MAGNESIUM	13 26.982 Al ALUMINIUM	14 28.086 Si SILICON	15 30.974 P PHOSPHORUS	16 32.065 S SULPHUR	17 35.453 Cl CHLORINE	18 39.948 Ar ARGON										
4	19 39.098 K POTASSIUM	20 40.078 Ca CALCIUM	21 44.956 Sc SCANDIUM	22 47.867 Ti TITANIUM	23 50.942 V VANADIUM	24 51.996 Cr CHROMIUM	25 54.938 Mn MANGANESE	26 55.845 Fe IRON	27 58.933 Co COBALT	28 58.693 Ni NICKEL	29 63.546 Cu COPPER	30 65.39 Zn ZINC	31 69.723 Ga GALLIUM	32 72.64 Ge GERMANIUM	33 74.922 As ARSENIC	34 78.96 Se SELENIUM	35 79.904 Br BROMINE	36 83.80 Kr KRYPTON
5	37 85.468 Rb RUBIDIUM	38 87.62 Sr STRONTIUM	39 88.906 Y YTTRIUM	40 91.224 Zr ZIRCONIUM	41 92.906 Nb NIOBIUM	42 95.94 Mo MOLYBDENUM	43 (98) Tc TECHNETIUM	44 101.07 Ru RUTHENIUM	45 102.91 Rh RHODIUM	46 106.42 Pd PALLADIUM	47 107.87 Ag SILVER	48 112.41 Cd CADMIUM	49 114.82 In INDIUM	50 118.71 Sn TIN	51 121.76 Sb ANTIMONY	52 127.60 Te TELLURIUM	53 126.90 I IODINE	54 131.29 Xe XENON
6	55 132.91 Cs CAESIUM	56 137.33 Ba BARIUM	57-71 La-Lu Lanthanide	72 178.49 Hf HAFNIUM	73 180.95 Ta TANTALUM	74 183.84 W TUNGSTEN	75 186.21 Re RHENIUM	76 190.23 Os OSMIUM	77 192.22 Ir IRIDIUM	78 195.08 Pt PLATINUM	79 196.97 Au GOLD	80 200.59 Hg MERCURY	81 204.38 Tl THALLIUM	82 207.2 Pb LEAD	83 208.98 Bi BISMUTH	84 (209) Po POLONIUM	85 (210) At ASTATINE	86 (222) Rn RADON
7	87 (223) Fr FRANCIUM	88 (226) Ra RADIUM	89-103 Ac-Lr Actinide	104 (261) Rf RUTHERFORDIUM	105 (262) Db DUBNIUM	106 (266) Sg SEABORGIUM	107 (264) Bh BOHRIUM	108 (277) Hs HASSIUM	109 (268) Mt MEITNERIUM	110 (281) Uun UNUNNIUM	111 (272) Uuu UNUNUNIUM	112 (285) Uub UNUNBIUM	114 (289) Uuq UNUNQUADIUM					

(1) Pure Appl. Chem., 73, No. 4, 667-683 (2001)
Relative atomic mass is shown with five significant figures. For elements have no stable nuclides, the value enclosed in brackets indicates the mass number of the longest-lived isotope of the element.

However three such elements (Th, Pa, and U) do have a characteristic terrestrial isotopic composition, and for these an atomic weight is tabulated.

Editor: Aditya Vardhan (adivar@netlinx.com)

LANTHANIDE

57 138.91 La LANTHANUM	58 140.12 Ce CERIUM	59 140.91 Pr PRASEODYMIUM	60 144.24 Nd NEODYMIUM	61 (145) Pm PROMETHIUM	62 150.36 Sm SAMARIUM	63 151.96 Eu EUROPIUM	64 157.25 Gd GADOLINIUM	65 158.93 Tb TERBIUM	66 162.50 Dy DYSPROSIUM	67 164.93 Ho HOLMIUM	68 167.26 Er ERBIUM	69 168.93 Tm THULIUM	70 173.04 Yb YTTERBIUM	71 174.97 Lu LUTETIUM
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ACTINIDE

89 (227) Ac ACTINIUM	90 232.04 Th THORIUM	91 231.04 Pa PROTACTINIUM	92 238.03 U URANIUM	93 (237) Np NEPTUNIUM	94 (244) Pu PLUTONIUM	95 (243) Am AMERICIUM	96 (247) Cm CURIUM	97 (247) Bk BERKELIUM	98 (251) Cf CALIFORNIUM	99 (252) Es EINSTEINIUM	100 (257) Fm FERMIUM	101 (258) Md MENDELEVIUM	102 (259) No NOBELIUM	103 (262) Lr LAWRENCIUM
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IUPAC Periodic Table of the Elements																18	
1 H hydrogen [1.007, 1.009]																2 He helium 4.003	
3 Li lithium [6.938, 6.997]	4 Be beryllium 9.012											13 B boron [10.80, 10.83]	14 C carbon [12.00, 12.02]	15 N nitrogen [14.00, 14.01]	16 O oxygen [15.99, 16.00]	17 F fluorine 19.00	10 Ne neon 20.18
11 Na sodium 22.99	12 Mg magnesium [24.30, 24.31]											13 Al aluminium 26.98	14 Si silicon [28.08, 28.09]	15 P phosphorus 30.97	16 S sulfur [32.05, 32.08]	17 Cl chlorine [35.44, 35.46]	18 Ar argon 39.95
19 K potassium 39.10	20 Ca calcium 40.08	21 Sc scandium 44.96	22 Ti titanium 47.87	23 V vanadium 50.94	24 Cr chromium 52.00	25 Mn manganese 54.94	26 Fe iron 55.85	27 Co cobalt 58.93	28 Ni nickel 58.69	29 Cu copper 63.55	30 Zn zinc 65.38(2)	31 Ga gallium 69.72	32 Ge germanium 72.63	33 As arsenic 74.92	34 Se selenium 78.96(3)	35 Br bromine [79.90, 79.91]	36 Kr krypton 83.80
37 Rb rubidium 85.47	38 Sr strontium 87.62	39 Y yttrium 88.91	40 Zr zirconium 91.22	41 Nb niobium 92.91	42 Mo molybdenum 95.96(2)	43 Tc technetium	44 Ru ruthenium 101.1	45 Rh rhodium 102.9	46 Pd palladium 106.4	47 Ag silver 107.9	48 Cd cadmium 112.4	49 In indium 114.8	50 Sn tin 118.7	51 Sb antimony 121.8	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.3
55 Cs caesium 132.9	56 Ba barium 137.3	57-71 lanthanoids	72 Hf hafnium 178.5	73 Ta tantalum 180.9	74 W tungsten 183.8	75 Re rhenium 186.2	76 Os osmium 190.2	77 Ir iridium 192.2	78 Pt platinum 195.1	79 Au gold 197.0	80 Hg mercury 200.6	81 Tl thallium [204.3, 204.4]	82 Pb lead 207.2	83 Bi bismuth 209.0	84 Po polonium	85 At astatine	86 Rn radon
87 Fr francium	88 Ra radium	89-103 actinoids	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		114 Fl flerovium		116 Lv livermorium		

Key:

atomic number
Symbol
name
standard atomic weight

Notes

- IUPAC 2011 Standard atomic weights abridged to four significant digits (Table 4 published in *Pure Appl. Chem.* 85, 1047-1078 (2013); <http://dx.doi.org/10.1351/PAC-REP-13-03-02>. The uncertainty in the last digit of the standard atomic weight value is listed in parentheses following the value. In the absence of parentheses, the uncertainty is one in that last digit. An interval in square brackets provides the lower and upper bounds of the standard atomic weight for that element. No values are listed for elements which lack isotopes with a characteristic isotopic abundance in natural terrestrial samples. See PAC for more details.

- "Aluminum" and "caesium" are commonly used alternative spellings for "aluminium" and "caesium."

- Claims for the discovery of all the remaining elements in the last row of the Table, namely elements with atomic numbers 113, 115, 117 and 118, and for which no assignments have yet been made, are being considered by a IUPAC and IUPAP Joint Working Party.

For updates to this table, see iupac.org/reports/periodic_table/. This version is dated 1 May 2013.

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INTERNATIONAL UNION OF
PURE AND APPLIED CHEMISTRY

IUPAC Periodic Table of the Elements

1 H hydrogen [1.007; 1.009]																	18 He helium 4.003
3 Li lithium [6.938; 6.997]	4 Be beryllium 9.012											13 B boron [10.80; 10.83]	14 C carbon [12.00; 12.02]	15 N nitrogen [14.00; 14.01]	16 O oxygen [15.99; 16.00]	17 F fluorine 19.00	10 Ne neon 20.18
11 Na sodium 22.99	12 Mg magnesium 24.31											13 Al aluminium 26.98	14 Si silicon [28.08; 28.09]	15 P phosphorus 30.97	16 S sulfur [32.05; 32.08]	17 Cl chlorine [35.44; 35.46]	18 Ar argon 39.95
19 K potassium 39.10	20 Ca calcium 40.08	21 Sc scandium 44.96	22 Ti titanium 47.87	23 V vanadium 50.94	24 Cr chromium 52.00	25 Mn manganese 54.94	26 Fe iron 55.85	27 Co cobalt 58.93	28 Ni nickel 58.69	29 Cu copper 63.55	30 Zn zinc 65.38(2)	31 Ga gallium 69.72	32 Ge germanium 72.63	33 As arsenic 74.92	34 Se selenium 78.96(3)	35 Br bromine 79.90	36 Kr krypton 83.80
37 Rb rubidium 85.47	38 Sr strontium 87.62	39 Y yttrium 88.91	40 Zr zirconium 91.22	41 Nb niobium 92.91	42 Mo molybdenum 95.96(2)	43 Tc technetium	44 Ru ruthenium 101.1	45 Rh rhodium 102.9	46 Pd palladium 106.4	47 Ag silver 107.9	48 Cd cadmium 112.4	49 In indium 114.8	50 Sn tin 118.7	51 Sb antimony 121.8	52 Te tellurium 127.6	53 I iodine 126.9	54 Xe xenon 131.3
55 Cs caesium 132.9	56 Ba barium 137.3	57-71 lanthanoids	72 Hf hafnium 178.5	73 Ta tantalum 180.9	74 W tungsten 183.8	75 Re rhenium 186.2	76 Os osmium 190.2	77 Ir iridium 192.2	78 Pt platinum 195.1	79 Au gold 197.0	80 Hg mercury 200.6	81 Tl thallium [204.3; 204.4]	82 Pb lead 207.2	83 Bi bismuth 209.0	84 Po polonium	85 At astatine	86 Rn radon
87 Fr francium	88 Ra radium	89-103 actinoids	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						
			57 La lanthanum 138.9	58 Ce cerium 140.1	59 Pr praseodymium 140.9	60 Nd neodymium 144.2	61 Pm promethium	62 Sm samarium 150.4	63 Eu europium 152.0	64 Gd gadolinium 157.3	65 Tb terbium 158.9	66 Dy dysprosium 162.5	67 Ho holmium 164.9	68 Er erbium 167.3	69 Tm thulium 168.9	70 Yb ytterbium 173.1	71 Lu lutetium 175.0
			89 Ac actinium	90 Th thorium 232.0	91 Pa protactinium 231.0	92 U uranium 238.0	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	103 Lr lawrencium



Notes

- IUPAC 2009 Standard atomic weights abridged to four significant digits (Table 4 published in *Pure Appl. Chem.* 83, 359-396 (2011); doi:10.1351/PAC-REP-10-09-14). The uncertainty in the last digit of the standard atomic weight value is listed in parentheses following the value. In the absence of parentheses, the uncertainty is one in that last digit. An interval in square brackets provides the lower and upper bounds of the standard atomic weight for that element. No values are listed for elements with no stable isotopes. See PAC for more details.
- "Aluminum" and "cesium" are commonly used alternative spellings for "aluminium" and "caesium."

For updates to this table, see iupac.org/reports/periodic_table/. This version is dated 21 January 2011.
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International Year of
CHEMISTRY
2011

The Periodic Table of Elements

1

H

HYDROGEN

1

3

Li

LITHIUM

7

11

Na

SODIUM

23

19

K

POTASSIUM

39

55

Cs

CESIUM

133

87

Fr

FRANCIUM

223

4

Be

BERYLLIUM

9

12

Mg

MAGNESIUM

24

20

Ca

CALCIUM

40

56

Ba

BARIUM

137

88

Ra

RADIUM

226

6

C

CARBON

12

Atomic Number = Number of Protons = Number of Electrons

Chemical Symbol

Chemical Name

Atomic Weight = Number of Protons + Number of Neutrons*

5

B

BORON

11

13

Al

ALUMINUM

27

31

Ga

GALLIUM

70

49

In

INDIUM

115

67

Tl

THALLIUM

204

81

Pb

LEAD

207

95

Bi

BISMUTH

209

103

Uub

UNUNBIUM

285

111

Uut

UNUNTRIUM

284

119

Uuq

UNUNQUADIUM

289

127

Uup

UNUNPENTIUM

288

135

Uuh

UNUNHEXIUM

291

151

Uus

UNUNSEPTIUM

NOT YET OBSERVED

2

He

HELIUM

4

10

Ne

NEON

20

18

Ar

ARGON

40

36

Kr

KRYPTON

84

54

Xe

XENON

131

86

Rn

RADON

222

118

Uuo

UNUNOCTIUM

294

NON-METALS

METALS

6 ← **Atomic Number** = Number of Protons = Number of Electrons

C ← **Chemical Symbol**

CARBON ← **Chemical Name**

12 ← **Atomic Weight** = Number of Protons + Number of Neutrons*

NON-METALS

METALS

KEY

- = Solid at room temperature
- = Liquid at room temperature
- = Gas at room temperature
- = Radioactive
- = Artificially Made

57 La LANTHANUM 139	58 Ce CERIUM 140	59 Pr PRASEODYMIUM 141	60 Nd NEODYMIUM 144	61 Pm PROMETHIUM 145	62 Sm SAMARIUM 150	63 Eu EUROPIUM 152	64 Gd GADOLINIUM 157	65 Tb TERBIUM 159	66 Dy DYSPROSIUM 163	67 Ho HOLMIUM 165	68 Er ERBIUM 167	69 Tm THULIUM 169	70 Yb YTTERBIUM 173	71 Lu LUTETIUM 175
89 Ac ACTINIUM 227	90 Th THORIUM 232	91 Pa PROTACTINIUM 231	92 U URANIUM 238	93 Np NEPTUNIUM 237	94 Pu PLUTONIUM 244	95 Am AMERICIUM 243	96 Cm CURIUM 247	97 Bk BERKELIUM 247	98 Cf CALIFORNIUM 251	99 Es EINSTEINIUM 252	100 Fm FERMIUM 257	101 Md MENDELEVIUM 258	102 No NOBELIUM 259	103 Lr LAWRENCIUM 262

* The atomic weights listed on this Table of Elements have been rounded to the nearest whole number. As a result, this chart actually displays the **mass number** of a specific isotope for each element. An element's complete, unrounded atomic weight can be found on the It's Elemental web site: <http://education.jlab.org/itselemental/index.html>

The Periodic Table of Elements

1 H HYDROGEN 1 2 He HELIUM 4 3 Li LITHIUM 7 4 Be BERYLLIUM 9 11 Na SODIUM 23 12 Mg MAGNESIUM 24 19 K POTASSIUM 39 20 Ca CALCIUM 40 37 Rb RUBIDIUM 85 38 Sr STRONTIUM 88 55 Cs CESIUM 133 56 Ba BARIUM 137 87 Fr FRANCIUM 223 88 Ra RADIUM 226																		6 C CARBON 12 Atomic Number = Number of Protons = Number of Electrons Chemical Symbol Chemical Name Atomic Weight = Number of Protons + Number of Neutrons*																		NON-METALS 5 B BORON 11 6 C CARBON 12 7 N NITROGEN 14 8 O OXYGEN 16 9 F FLUORINE 19 10 Ne NEON 20 13 Al ALUMINUM 27 14 Si SILICON 28 15 P PHOSPHORUS 31 16 S SULFUR 32 17 Cl CHLORINE 35 18 Ar ARGON 40 31 Ga GALLIUM 70 32 Ge GERMANIUM 73 33 As ARSENIC 75 34 Se SELENIUM 79 35 Br BROMINE 80 36 Kr KRYPTON 84 51 Sb ANTIMONY 122 52 Te TELLURIUM 128 53 I IODINE 127 54 Xe XENON 131 81 Tl THALLIUM 204 82 Pb LEAD 207 83 Bi BISMUTH 209 84 Po POLONIUM 209 85 At ASTATINE 210 86 Rn RADON 222 113 Uut UNUNTRIUM 284 114 Uuq UNUNQUADIUM 289 115 Uup UNUNPENTIUM 288 116 Uuh UNUNHEXIUM 291 117 Uus UNUNSEPTIUM NOT YET OBSERVED 118 Uuo UNUNOCTIUM 294																	
METALS																																																					
21 Sc SCANDIUM 45 22 Ti TITANIUM 48 23 V VANADIUM 51 24 Cr CHROMIUM 52 25 Mn MANGANESE 55 26 Fe IRON 56 27 Co COBALT 59 28 Ni NICKEL 59 29 Cu COPPER 64 30 Zn ZINC 65																		31 Ga GALLIUM 70 32 Ge GERMANIUM 73 33 As ARSENIC 75 34 Se SELENIUM 79 35 Br BROMINE 80 36 Kr KRYPTON 84																																			
39 Y YTTRIUM 89 40 Zr ZIRCONIUM 91 41 Nb NIOBIUM 93 42 Mo MOLYBDENUM 96 43 Tc TECHNETIUM 98 44 Ru RUTHENIUM 101 45 Rh RHODIUM 103 46 Pd PALLADIUM 106 47 Ag SILVER 108 48 Cd CADMIUM 112																		49 In INDIUM 115 50 Sn TIN 119 51 Sb ANTIMONY 122 52 Te TELLURIUM 128 53 I IODINE 127 54 Xe XENON 131																																			
72 Hf HAFNIUM 178 73 Ta TANTALUM 181 74 W TUNGSTEN 184 75 Re RHENIUM 186 76 Os OSMIUM 190 77 Ir IRIDIUM 192 78 Pt PLATINUM 195 79 Au GOLD 197 80 Hg MERCURY 201																		81 Tl THALLIUM 204 82 Pb LEAD 207 83 Bi BISMUTH 209 84 Po POLONIUM 209 85 At ASTATINE 210 86 Rn RADON 222																																			
104 Rf RUTHERFORDIUM 267 105 Db DUBNIUM 268 106 Sg SEABORGIUM 271 107 Bh BOHRIUM 272 108 Hs HASSIUM 277 109 Mt MEITNERIUM 276 110 Ds DARMSTADIUM 281 111 Rg ROENTGENIUM 280 112 Uub UNUNBIUM 285																		113 Uut UNUNTRIUM 284 114 Uuq UNUNQUADIUM 289 115 Uup UNUNPENTIUM 288 116 Uuh UNUNHEXIUM 291 117 Uus UNUNSEPTIUM NOT YET OBSERVED 118 Uuo UNUNOCTIUM 294																																			

6 ← **Atomic Number** = Number of Protons = Number of Electrons

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METALS

KEY

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89 Ac ACTINIUM 227	90 Th THORIUM 232	91 Pa PROTACTINIUM 231	92 U URANIUM 238	93 Np NEPTUNIUM 237	94 Pu PLUTONIUM 244	95 Am AMERICIUM 243	96 Cm CURIUM 247	97 Bk BERKELIUM 247	98 Cf CALIFORNIUM 251	99 Es EINSTEINIUM 252	100 Fm FERMIUM 257	101 Md MENDELEVIUM 258	102 No NOBELIUM 259	103 Lr LAWRENCIUM 262

* The atomic weights listed on this Table of Elements have been rounded to the nearest whole number. As a result, this chart actually displays the **mass number** of a specific isotope for each element. An element's complete, unrounded atomic weight can be found on the It's Elemental web site: <http://education.jlab.org/itselemental/index.html>

THE PERIODIC TABLE OF ELEMENTS

1

H

HYDROGEN

1.008

3

Li

LITHIUM

6.941

4

Be

BERYLLIUM

9.012

11

Na

SODIUM

22.990

12

Mg

MAGNESIUM

24.305

19

K

POTASSIUM

39.098

20

Ca

CALCIUM

40.078

21

Sc

SCANDIUM

44.956

22

Ti

TITANIUM

47.867

23

V

VANADIUM

50.942

24

Cr

CHROMIUM

51.996

25

Mn

MANGANESE

54.938

26

Fe

IRON

55.845

27

Co

COBALT

58.933

28

Ni

NICKEL

58.693

29

Cu

COPPER

63.546

30

Zn

ZINC

65.382

31

Ga

GALLIUM

69.723

32

Ge

GERMANIUM

72.640

33

As

ARSENIC

74.922

34

Se

SELENIUM

78.971

35

Br

BROMINE

79.904

36

Kr

KRYPTON

83.798

37

Rb

RUBIDIUM

85.468

38

Sr

STRONTIUM

87.620

39

Y

YTTRIUM

88.906

40

Zr

ZIRCONIUM

91.224

41

Nb

NIOBIUM

92.906

42

Mo

MOLYBDENUM

95.951

43

Tc

TECHNETIUM

(97.907)

44

Ru

RUTHENIUM

101.072

45

Rh

RHODIUM

102.906

46

Pd

PALLADIUM

106.421

47

Ag

SILVER

107.868

48

Cd

CADMIUM

112.414

49

In

INDIUM

114.818

50

Sn

TIN

118.711

51

Sb

ANTIMONY

121.760

52

Te

TELLURIUM

127.603

53

I

IODINE

126.904

54

Xe

XENON

131.294

55

Cs

CAESIUM

132.905

56

Ba

BARIUM

137.328

E57-71

72

Hf

HAFNIUM

178.492

73

Ta

TANTALUM

180.948

74

W

TUNGSTEN

183.841

75

Re

RHENIUM

186.207

76

Os

OSMIUM

190.233

77

Ir

IRIDIUM

192.217

78

Pt

PLATINUM

195.084

79

Au

GOLD

196.967

80

Hg

MERCURY

200.592

81

Tl

THALLIUM

204.383

82

Pb

LEAD

207.210

83

Bi

BISMUTH

208.980

84

Po

POLONIUM

(208.982)

85

At

ASTATINE

(209.987)

86

Rn

RADON

(222.018)

87

Fr

FRANCIUM

(223.020)

88

Ra

RADIUM

(226.025)

E89-103

104

Rf

RUTHERFORDIUM

(261.109)

105

Db

DUBNIUM

(262.114)

106

Sg

SEABORGIUM

(266.122)

107

Bh

BOHRIUM

(264.120)

108

Hs

HASSIUM

(277.000)

109

Mt

MEITNERIUM

(268.139)

110

Ds

DARMSTADIUM

(281.000)

111

Rg

ROENTGENIUM

(280.000)

112

Cn

COPERNICIUM

(285.000)

113

Nh

NIHONIUM

(286.000)

114

Fl

FLEROVIUM

(289.000)

115

Mc

MOSCOWIUM

(289.000)

116

Lv

LIVERMORIUM

(293.000)

117

Ts

TENNESSINE

(294.000)

118

Og

OGANESSON

(294.000)

57

La

LANTHANUM

138.905

58

Ce

CERIUM

140.116

59

Pr

PRASEODYMIUM

140.908

60

Nd

NEODYMIUM

144.242

61

Pm

PROMETHIUM

(144.000)

62

Sm

SAMARIUM

150.362

63

Eu

EUROPIUM

151.964

64

Gd

GADOLINIUM

157.253

65

Tb

TERBIUM

158.925

66

Dy

DYSPROSIUM

162.500

67

Ho

HOLMIUM

164.930

68

Er

ERBIUM

167.259

69

Tm

THULIUM

168.934

70

Yb

YTTERBIUM

173.054

71

Lu

LUTETIUM

174.967

89

Ac

ACTINIUM

(227.028)

90

Th

THORIUM

(232.038)

91

Pa

PROTACTINIUM

(231.036)

92

U

URANIUM

(238.029)

93

Np

NEPTUNIUM

(237.048)

94

Pu

PLUTONIUM

(244.064)

95

Am

AMERICIUM

(243.061)

96

Cm

CURIUM

(247.070)

97

Bk

BERKELIUM

(247.070)

98

Cf

CALIFORNIUM

(251.080)

99

Es

EINSTEINIUM

(252.083)

100

Fm

FERMIUM

(257.095)

101

Md

MENDELEVIUM

(258.098)

102

No

NOBELIUM

(259.101)

103

Lr

LAWRENCIUM

(262.110)

Symbol Key

Atomic number

Element symbol

Element name

Relative atomic mass

Block

Colour Key

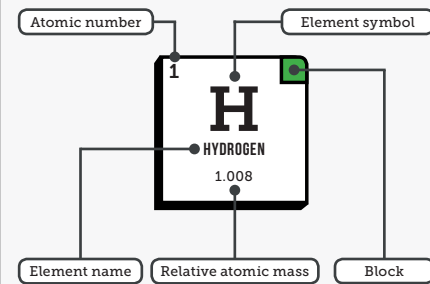
s block elements

p block elements

d block elements

f block elements

Symbol Key



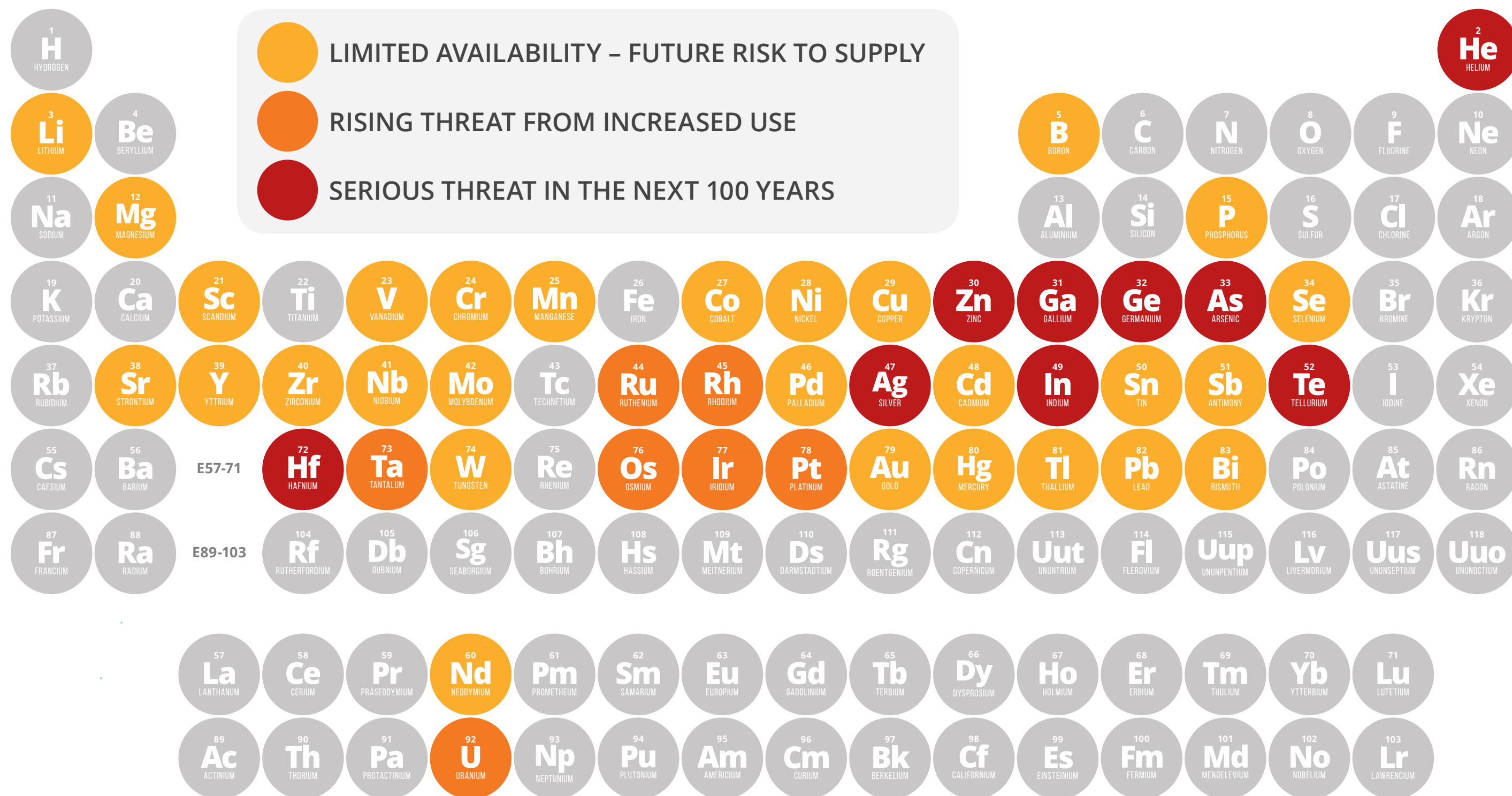
Groups of elements

- s block elements
- p block elements
- d block elements
- f block elements

Colour Key



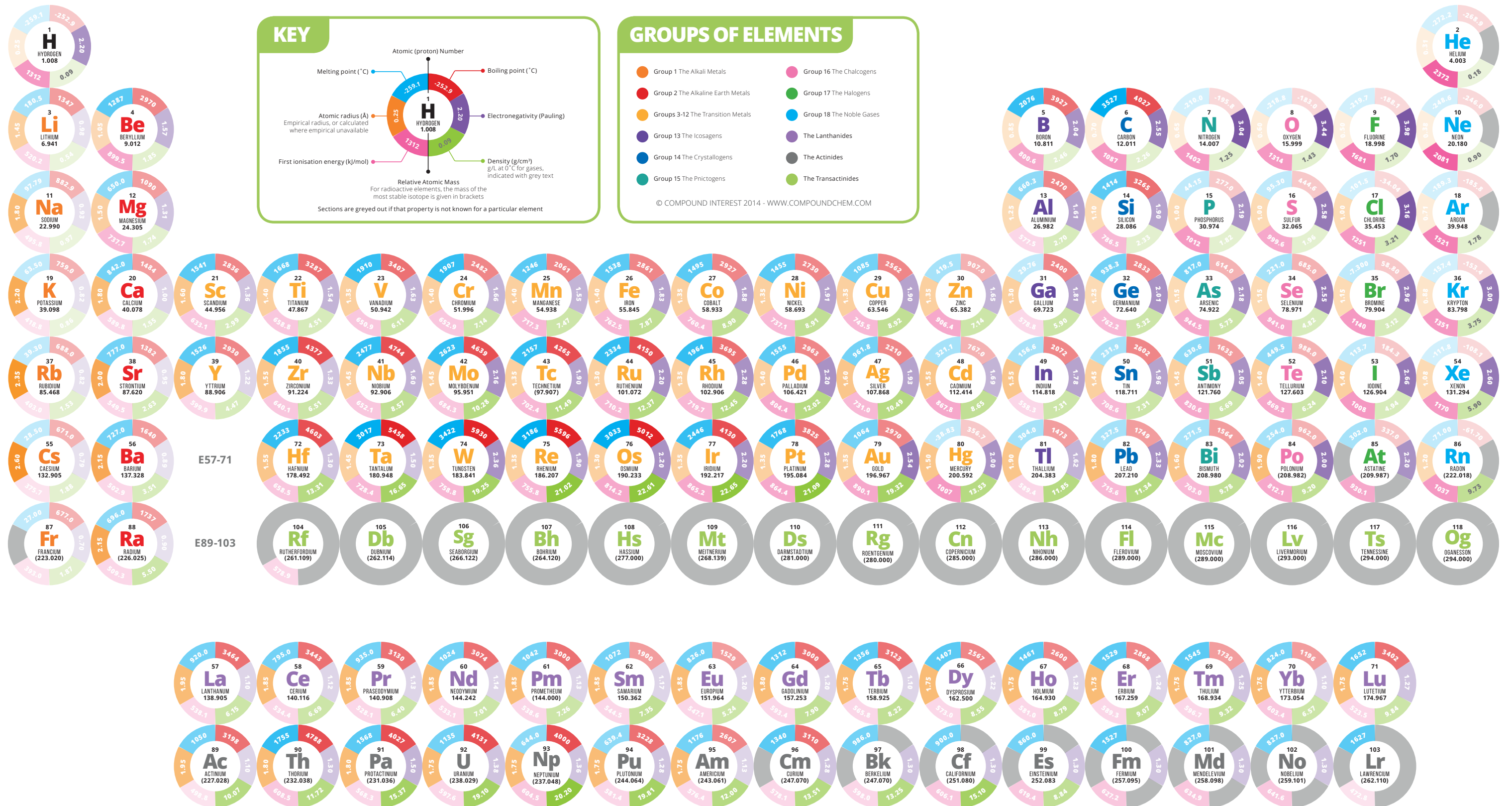
THE PERIODIC TABLE'S ENDANGERED ELEMENTS



SOURCE: CHEMISTRY INNOVATION KNOWLEDGE TRANSFER NETWORK

THE PERIODIC TABLE OF THE ELEMENTS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

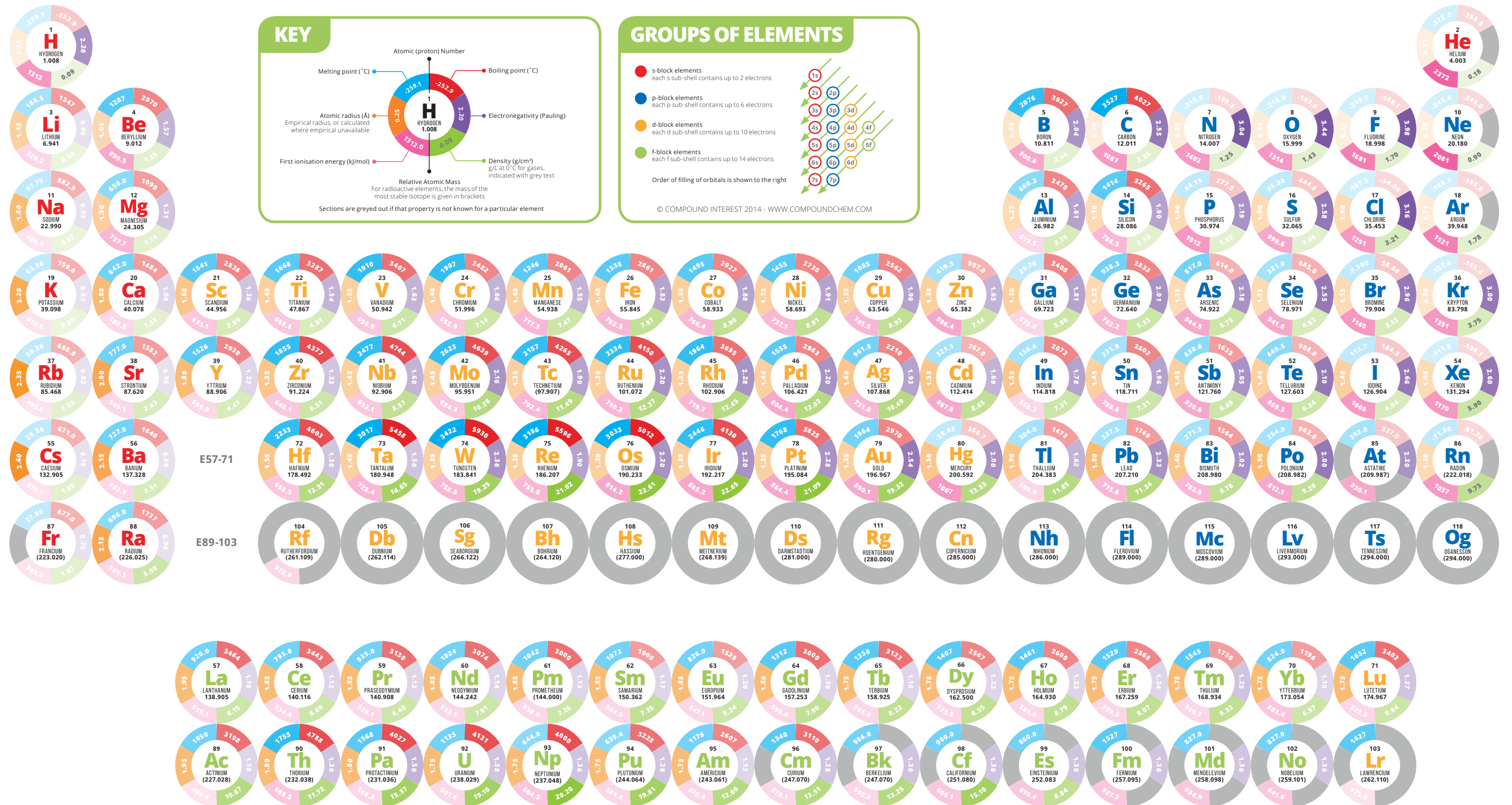


NOTES: For elements with more than one allotrope, the properties of the most common allotrope are given. Different allotropes may have differing melting points, boiling points, and densities.



THE PERIODIC TABLE OF THE ELEMENTS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



NOTES: For elements with more than one allotrope, the properties of the most common allotrope are given. Different allotropes may have differing melting points, boiling points, and densities.



PERIODIC TABLE: ELEMENT NAME ORIGINS

1

H

HYDROGEN

Water-forming

3

Li

LITHIUM

Stone

4

Be

BERYLLIUM

Beryllios

11

Na

SODIUM

Soda

12

Mg

MAGNESIUM

Magnesia

19

K

POTASSIUM

Potash

20

Ca

CALCIUM

Lime

21

Sc

SCANDIUM

Scandinavia

22

Ti

TITANIUM

Titans

23

V

VANADIUM

Vanadis/Freya

24

Cr

CHROMIUM

Colour

25

Mn

MANGANESE

Magnet

26

Fe

IRON

Iren

27

Co

COBALT

Goblin

28

Ni

NICKEL

Devil's copper

29

Cu

COPPER

From Cyprus

30

Zn

ZINC

Zink

31

Ga

GALLIUM

France/Gaul

32

Ge

GERMANIUM

Germany

33

As

ARSENIC

Orpiment

34

Se

SELENIUM

Moon

35

Br

BROMINE

Stench

36

Kr

KRYPTON

Hidden

37

Rb

RUBIDIUM

Dark red

38

Sr

STRONTIUM

Strontian

39

Y

YTTRIUM

Ytterby

40

Zr

ZIRCONIUM

Gold-like

41

Nb

NIوبيUM

Niobe

42

Mo

MOLYBDENUM

Lead

43

Tc

TECHNETIUM

Artificial

44

Ru

RUTHENIUM

Russia

45

Rh

RHODIUM

Rose-coloured

46

Pd

PALLADIUM

Pallas

47

Ag

SILVER

Soilfur

48

Cd

CADMIUM

Calamine

49

In

INDIUM

Indigo

50

Sn

TIN

Tin

51

Sb

ANTIMONY

Not alone

52

Te

TELLURIUM

Earth

53

I

IODINE

Violet

54

Xe

XENON

Stranger

55

Cs

CAESIUM

Sky blue

56

Ba

BARIUM

Heavy

57-71

72

Hf

HAFNIUM

Copenhagen

73

Ta

TANTALUM

Tantalus

74

W

TUNGSTEN

Heavy stone

75

Re

RHENIUM

Rhine

76

Os

OSMIUM

Smell

77

Ir

IRIDIUM

Iris

78

Pt

PLATINUM

Little silver

79

Au

GOLD

Gold

80

Hg

MERCURY

Mercury

81

Tl

THALLIUM

Green twig

82

Pb

LEAD

Lead

83

Bi

BISMUTH

White mass

84

Po

POLONIUM

Poland

85

At

ASTATINE

Unstable

86

Rn

RADON

Radium

87

Fr

FRANCIUM

France

88

Ra

RADIUM

Ray

89-103

104

Rf

RUTHERFORDIUM

Ernest Rutherford

105

Db

DUBNIUM

Dubna

106

Sg

SEABORGIUM

Glenn Seaborg

107

Bh

BOHRNIUM

Niels Bohr

108

Hs

HASSIUM

Hessen

109

Mt

MEITNERIUM

Lise Meitner

110

Ds

DARMSTADIUM

Darmstadt

111

Rg

ROENTGENIUM

Wilhelm Röntgen

112

Cn

COPERNICIUM

Copernicus

113

Nh

NIHONIUM

Japan

114

Fl

FLEROVIUM

Georgy Flerov

115

Mc

MOSCOVIUM

Moscow

116

Lv

LIVERMORIUM

Livermore Lab

117

Ts

TENNESSINE

Tennessee

118

Og

OGANESSON

Yuri Oganessian

Symbol Key

Atomic number

Element symbol

Element name

Origin/meaning

Language of origin

Language of Origin

GREEK

ANGLO-SAXON

LATIN

SPANISH

RUSSIAN

NORSE

ENGLISH

ARABIC

GERMAN

GAEIC

SWEDISH

NONE – FROM NAME

JAPANESE

Name Source

MINERAL

ASTRONOMICAL BODY

MYTHOLOGY

PERSON

PLACE

PROPERTIES

Table Colour Key

1

H

HYDROGEN

Water-forming

57

La

LANTHANIUM

Lie hidden

58

Ce

CERIUM

Ceres

59

Pr

PRASEODYMIUM

Green twin

60

Nd

NEODYMIUM

New twin

61

Pm

PROMETHIUM

Prometheus

62

Sm

SAMARIUM

Samarskite

63

Eu

EUROPIUM

Europe

64

Gd

GADOLINIUM

Johan Gadolin

65

Tb

TERBIUM

Ytterby

66

Dy

DYSPROSIUM

Hard to obtain

67

Ho

HOLMIUM

Holmia

68

Er

ERBIUM

Ytterby

69

Tm

THULIUM

Thule

70

Yb

YTTERBIUM

Ytterby

71

Lu

LUTECIUM

Paris

89

Ac

ACTINIUM

Ray

90

Th

THORIUM

Thor

91

Pa

PROTACTINIUM

First ray

92

U

URANIUM

Uranus

93

Np

NEPTUNIUM

Neptune

94

Pu

PLUTONIUM

Pluto

95

Am

AMERICIUM

America

96

Cm

CURIUM

Marie Curie

97

Bk

BERKELIUM

Berkeley

98

Cf

CALIFORNIUM

California

99

Es

EINSTEINIUM

Albert Einstein

100

Fm

FERMIUM

Enrico Fermi

101

Md

MENDELEVIUM

Dmitri Mendeleev

102

No

NOBELIUM

Alfred Nobel

103

Lr

LAWRENCIUM

Ernest Lawrence

THE PERIODIC TABLE OF OXIDATION STATES

