

METALLIC CHARACTER

In order to think about metallic character, we really have to ask what we mean by "metal." What is a metal?

Metals have some familiar properties. Most, but not all are shiny. Most, but not all are **malleable**(able to be shaped into flat sheets and other shapes) and/or **ductile** (able to be pulled into long filaments like wires).

To varying degrees, metals carry electric current and transmit heat readily.

are either weakly bound (like the alkaline earth elements) or occupy d-orbitals. D-orbitals are unique in that when many d-orbital containing metal elements bond together, the d-orbitals combine to create energy levels that allow electrons to roam freely from one atom to another. The best conductors, like the coinage metals, copper, silver and gold, have mostly-filled d-subshells.

The periodic table below shows the metallic elements and the general at-a-glance trend. In general, as we move down and to the left, elements become more metallic.

Most elements are metals

	1A	2A											3A	4A	5A	6A	7A	0
1	1 H 1.00797																	2 He 4.0026
2	3 Li 6.941	4 Be 9.0122											5 B 10.811	6 C 12.01115	7 N 14.0067	8 O 15.9994	9 F 18.9984	10 Ne 20.179
3	11 Na 22.9898	12 Mg 24.305	3B	4B	5B	6B	7B	8B			1B	2B	13 Al 26.9815	14 Si 28.086	15 P 30.9738	16 S 32.064	17 Cl 35.453	18 Ar 39.948
4	19 K 39.098	20 Ca 40.08	21 Sc 44.956	22 Ti 47.90	23 V 50.942	24 Cr 51.996	25 Mn 54.9380	26 Fe 55.847	27 Co 58.9332	28 Ni 58.70	29 Cu 63.54	30 Zn 65.38	31 Ga 69.72	32 Ge 72.59	33 As 74.9216	34 Se 78.96	35 Br 79.904	36 Kr 83.80
5	37 Rb 85.47	38 Sr 87.62	39 Y 88.905	40 Zr 91.22	41 Nb 92.906	42 Mo 95.94	43 Tc (99)	44 Ru 101.07	45 Rh 102.905	46 Pd 106.4	47 Ag 107.868	48 Cd 112.41	49 In 114.82	50 Sn 118.69	51 Sb 121.75	52 Te 127.60	53 I 126.9045	54 Xe 131.30
6	55 Cs 132.905	56 Ba 137.33	57 La 138.91	72 Hf 178.49	73 Ta 180.948	74 W 183.85	75 Re 186.2	76 Os 190.2	77 Ir 192.2	78 Pt 195.09	79 Au 196.967	80 Hg 200.59	81 Tl 204.37	82 Pb 207.19	83 Bi 208.980	84 Po (210)	85 At (210)	86 Rn (222)
7	87 Fr (223)	88 Ra 226.0254	89 Ac (227)	104 Rf (260)	105 Ha (260)	106	107	108	109									

	58	59	60	61	62	63	64	65	66	67	68	69	70	71
Lanthanides	Ce 140.12	Pr 140.9077	Nd 144.24	Pm (147)	Sm 150.35	Eu 151.96	Gd 157.25	Tb 158.925	Dy 162.50	Ho 164.930	Er 167.26	Tm 168.934	Yb 173.04	Lu 174.97
Actinides	90	91	92	93	94	95	96	97	98	99	100	101	102	103
	Th 232.038	Pa 231.0359	U 238.03	Np 237.0482	Pu (242)	Am (243)	Cm (247)	Bk (247)	Cf (251)	Es (254)	Fm (254)	Md (258)	No (259)	Lr (260)

Source: <http://www.drcruzan.com/PeriodicTrends.html>