

Metallic Behavior

Metals (Blue)

Metalloids (Green)

Nonmetals (Yellow)

1A (1)												3A (13)				4A (14)	5A (15)	6A (16)	7A (17)		8 (18)																								
Hydrogen 1 H	2A (2)											Boron 5 B	Carbon 6 C	Nitrogen 7 N	Oxygen 8 O	Fluorine 9 F	Neon 10 Ne	Sodium 11 Na	Magnesium 12 Mg	Aluminum 13 Al	Silicon 14 Si	Phosphorus 15 P	Sulfur 16 S	Chlorine 17 Cl	Argon 18 Ar																				
Lithium 3 Li	Beryllium 4 Be	3B (3)	4B (4)	5B (5)	6B (6)	7B (7)	8B (8) (9) (10)			1B (11)	2B (12)	Gallium 31 Ga	Germanium 32 Ge	Arsenic 33 As	Selenium 34 Se	Bromine 35 Br	Krypton 36 Kr																												
Potassium 19 K	Calcium 20 Ca	Scandium 21 Sc	Titanium 22 Ti	Vanadium 23 V	Chromium 24 Cr	Manganese 25 Mn	Iron 26 Fe	Cobalt 27 Co	Nickel 28 Ni	Copper 29 Cu	Zinc 30 Zn	Indium 49 In	Tin 50 Sn	Antimony 51 Sb	Tellurium 52 Te	Iodine 53 I	Xenon 54 Xe																												
Rubidium 37 Rb	Sr 38	Yttrium 39 Y	Zirconium 40 Zr	Niobium 41 Nb	Molybdenum 42 Mo	Technetium 43 Tc	Ruthenium 44 Ru	Rhodium 45 Rh	Palladium 46 Pd	Silver 47 Ag	Cadmium 48 Cd	Thallium 81 Tl	Lead 82 Pb	Bismuth 83 Bi	Polonium 84 Po	Astatine 85 At	Radon 86 Rn																												
Cesium 55 Cs	Barium 56 Ba	Lanthanum 57 La	Hafnium 72 Hf	Tantalum 73 Ta	Tungsten 74 W	Rhenium 75 Re	Osmium 76 Os	Iridium 77 Ir	Platinum 78 Pt	Gold 79 Au	Mercury 80 Hg	Francium 87 Fr	Radium 88 Ra	Actinium 89 Ac	Rutherfordium 104 Rf	Hassium 105 Hs	Meitnerium 106 Mt																												
<table border="1"> <tr> <td>Carbon 6 C</td> <td>Praseodymium 59 Pr</td> <td>Neodymium 60 Nd</td> <td>Promethium 61 Pm</td> <td>Samarium 62 Sm</td> <td>Europium 63 Eu</td> <td>Gadolinium 64 Gd</td> <td>Terbium 65 Tb</td> <td>Dysprosium 66 Dy</td> <td>Holmium 67 Ho</td> <td>Erbium 68 Er</td> <td>Thulium 69 Tm</td> <td>Ytterbium 70 Yb</td> <td>Lutetium 71 Lu</td> </tr> <tr> <td>Thorium 90 Th</td> <td>Protactinium 91 Pa</td> <td>Uranium 92 U</td> <td>Neptunium 93 Np</td> <td>Plutonium 94 Pu</td> <td>Americium 95 Am</td> <td>Curium 96 Cm</td> <td>Berkelium 97 Bk</td> <td>Californium 98 Cf</td> <td>Einsteinium 99 Es</td> <td>Fermium 100 Fm</td> <td>Mendelevium 101 Md</td> <td>Nobelium 102 No</td> <td>Lawrencium 103 Lr</td> </tr> </table>																		Carbon 6 C	Praseodymium 59 Pr	Neodymium 60 Nd	Promethium 61 Pm	Samarium 62 Sm	Europium 63 Eu	Gadolinium 64 Gd	Terbium 65 Tb	Dysprosium 66 Dy	Holmium 67 Ho	Erbium 68 Er	Thulium 69 Tm	Ytterbium 70 Yb	Lutetium 71 Lu	Thorium 90 Th	Protactinium 91 Pa	Uranium 92 U	Neptunium 93 Np	Plutonium 94 Pu	Americium 95 Am	Curium 96 Cm	Berkelium 97 Bk	Californium 98 Cf	Einsteinium 99 Es	Fermium 100 Fm	Mendelevium 101 Md	Nobelium 102 No	Lawrencium 103 Lr
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Metallic Behavior

Metals are located in the left and lower three-quarters of the periodic table.

Metals tend to lose electrons (and form cations) during chemical reactions because they have low ionization energies.

http://www.chem.umass.edu/genchem/whelan/class_images/111_Period_Table_Classifications.gif

Metallic Behavior

The trend in metallic character

Metallic behavior increases (in the opposite direction as ionization energy)

- from top to bottom and
- from right to left.

The diagram shows a periodic table with arrows indicating the trend of increasing metallic character. A horizontal arrow at the top points from right to left, labeled "Increasing Metallic Character". A vertical arrow on the right side points downwards, labeled "Increasing Metallic Character". The bottom-left corner is labeled "Most Metallic" and the top-right corner is labeled "Least Metallic".

	IA																		VIIIA	
1	H	He																		
2	Li	Be										B	C	N	O	F	Ne			
3	Na	Mg	III B	IV B	V B	VI B	VII B	VIII B			IB	II B	Al	Si	P	S	Cl	Ar		
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr		
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe		
6	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn		
7	Fr	Rd	Ac																	

<http://grandinetti.org/Teaching/Chem121/Lectures/ChemicalReactivity/assets/MetallicTable.gif>